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**DETERMINING THE ACADEMIC ENGLISH LANGUAGE
NEEDS OF COMPUTER SCIENCE STUDENTS: HiLCoE
COLLEGE IN FOCUS**

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Determining the Academic English Language Needs of Computer Science Students: HiLCoE College in Focus

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of Arts in Teaching English as a Foreign Language (TEFL)**

**By
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DECLARATION

This thesis is my original work and has not been presented for a degree in any other university, and that all sources of material used for the thesis have been duly acknowledged.

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ABSTRACT

The purpose of this study was to investigate the academic English language needs of computer science students at HiLCoE College. The target needs were specified in terms of the four macro skills and the most common language activities under each macro skill.

Questionnaires were designed and distributed to two different groups- instructors of computer science courses and students of computer science at the college. Interviews were conducted with the instructors and students to cross check the responses obtained through the questionnaires. With these instruments, the subjects of the study were asked to indicate the degree of importance of the macro skills and language activities to students of computer science in the college.

The findings revealed that the receptive skills - listening and reading are the most important skills followed by writing and speaking respectively. The findings have also shown that the main language activities under each macro skills are: a, Listening -listening to lecture, listening to teachers' explanation and listening to class discussion, b. Speaking- asking questions, answering questions and Participating in group discussion, c. Writing- making lecture notes, writing other assignments and writing test answers d. Reading – reading lecture notes, reading text books and reading hand outs.

An analysis of the course book in use was also carried out to see whether it was relevant to the needs of the learners. It was found out that it largely fails to meet the needs of the learners in that the findings of the analysis did not correspond to the identified needs of the learners.

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CHAPTER ONE

1. Introduction

1.1 Statement of the Problem

It is known that one important development in the area of English language teaching is what is referred to as English for Specific Purposes (ESP henceforth) which aims at meeting the needs of specific groups of learners. One of the factors that led to the emergence of ESP is said to be the understanding that there are learners who need English for specialized purposes (Broughton & and Brumfit etal, 1980). ESP learners are said to have one main characteristic that differentiate them from General English learners. Hutchinson and Waters (1987) write “it is the awareness of a target situation – a definable need to communicate in English that distinguishes the ESP learners from the learner of General English” (P.54). Robinson (1991) in relation to the characteristics of ESP learners writes “students study English not because they are interested in the English language (or English culture) as such but because they need English for study or work purposes” (P. 2).

Furthermore, educational psychology has provided the area of language teaching with the insight that learners and their attitudes should be given paramount importance. Learners are believed to have varied ‘needs’ and ‘interests’ which impact their motivation and which in turn affects their success in language learning. Hence, the need for developing courses tailored to the needs and interests of learners (Hutchinson and Waters, 1987).

As a consequence, the task of developing courses relevant to the specific needs of learners must have needs analysis as its point of departure (Mackay, 1978; Tarone & Yule, 1989). According to Stern (1993) needs analysis serves “as a key source of input for decisions to be made with respect to content, objectives, and treatment [of] strategies”(p.43).

In spite of the aforementioned developments in the field of English language teaching, many students in Ethiopia who are attending colleges and universities pursuing their education in varied areas of specialty are taking General English courses. In like manner, students studying Computer Science at HiLCoE College are offered a general English course. The needs of these students, as far as my knowledge goes has not been analyzed. Thus, there is no basis which can make one claim that the needs of the students are met by the course book in use.

The purpose of this study is to analyze the academic English language needs of Computer Science students at HiLCoE College in the degree program.

1.2 Objectives

The general objective of the study is to find out what the target students academic language needs are.

The specific objectives of the study are:

1. to put the four macro skills in order of importance in relation to the needs of the learners,
2. to find out the main language activities relating to their academic life and
3. to find out the extent to which the needs of the learners are met by the course book in use.

1.3 Significance of the Study

It is hoped that the findings of this study will provide useful information which can be used to evaluate the relevance of the material in use to the needs of the learners. Course designers and material writers, it is also hoped, will benefit from the expected findings of the study in that the information may help them to produce materials relevant to the needs of the computer science students.

1.4 Limitations of the Study

The importance of including students and teachers of other institutions dealing with the same field (i.e. computer science) is recognized; however, this was not possible due to two restrictive factors – time and finance.

It should also be said that the original intent was to include the occupational needs of the students in the study. And questionnaires and interviews were developed for this purpose. However, it was found out that the positions the graduates of the college assume on graduating and the settings in which they had to function have been found to be too diverse to result in a generalisable finding. This has resulted in the narrowing of the original topic of the study.

Moreover, due to the same restrictive factors, the study is limited to analyzing the English language needs of the target students by focusing only on prioritizing the four macro skills and identifying the main language activities pertinent to the learners' academic needs.

CHAPTER TWO

2. Review of Related Literature

2.1 What ESP is

Different scholars have described ESP in different ways. Duan and Gu (2004) write that ESP is “a pedagogy in which the syllabus, contents, and methods are determined according to the needs of learners’ specialized subjects” (p.3).

Munby (1978) states that ESP courses are:

Those where the syllabus and materials are determined in all essentials by the prior analysis of the communication needs of the learner, rather than by non learner – centered criteria such as the teacher’s or institution’s predetermined preference. (P.2)

As can clearly be seen from the above quotations, needs analysis is central to ESP.

Evans and John (1998) have described ESP by way of listing its characteristics:

1. Absolute characteristics:

- ESP is designed to meet specific needs of the learner;
- ESP makes use of the underlying methodology and activities of the disciplines it serves;

2. Variable characteristics:

- ESP may be related to or designed from specific disciplines
- ESP may use, in specific teaching situations, a different methodology from that of general English;
- ESP is likely to be designed for adult learners, either at a tertiary level institution or in a professional work situation. It could, however, be used for learners at secondary school level;
- ESP is generally designed for intermediate or advanced students. Most ESP courses assume basic knowledge of the language system, but it can be used with beginners. (p. 4-5)

2.2. Origin of ESP

2.2.1 Trade and Commerce

Two historical periods are said to have witnessed activities, which generated a need for ESP:

2.2.1.1. Post Second World War Period

According to Hutchinson and Waters (1987) this period saw:

enormous and unprecedented expansion in scientific, technical and economic activity on an international scale. This expansion created a world unified and dominated by two forces – technology and commerce which in their relentless progress soon generated a demand for an international language. For various reasons, most notably the economic power of the United States . . . this roll fell to English. (P. 6)

Now that English had become an international language of commerce and technology, a huge number of people became interested in studying it. These learners were said to be characterized by having 'well defined goals' for being interested to study English.

Hutchinson and Waters' words go:

... a new generation of learners who knew specifically why they were learning a language - businessmen and women who wanted to sell their products, mechanics who had to read instruction manuals doctors who need to keep up with developments in their field. . . .(Ibid)

2.2.1.2. Oil Crises of the 1970s

The cause being scarcity of oil, western countries are said to have invested huge amount of money and expertise in oil-rich countries which resulted in making English an important language to learn. But due to the restrictive factors – money and time, people wanted to learn the language in a cost effective way; hence, the need for courses with clearly defined goals. All these

factors put demand on the language-teaching professionals to develop courses tailored to 'specific needs' (Nodoushan, 2007).

2.2.2. A Revolution in Linguistics

A shift in focus in the field of linguistics is also said to have come into play parallel to the increasing need for English relevant to particular needs.

Gatehouse (2001) writes, "Whereas traditional linguists set out to describe the features of language, revolutionary pioneers in linguistics began to focus on the ways in which language is used in real communication" (p. 2).

An important discovery of research done on the actual use of language was that spoken and written language differ in several ways and from situation to situation. And this is said to have brought about the view that important differences exist in the English used in different areas of specialty; thus, it would be feasible to analyze the linguistic features of particular situations and make them form the core of English courses (Hutchinson and Waters, 1987).

A number of studies have been conducted on the analysis of varieties of English in different situations. One work cited is the analysis of doctor-patient communication. But the analysis of English for science and technology (EST for short) was the most dominant. In fact, for some period ESP and EST were thought to be synonymous (ibid).

Hutchinson and Waters (1987) summarize the whole idea as follows:

In short, the view gained ground that the English needed by a particular group of learners could be identified by analyzing the linguistic characteristics of their specialist area of work or study. 'Tell me what you need English for and I will tell you the English that you need' became the guiding principle of ESP.
(pp.7-8)

2.2.3. Focus on the Learner

Another contribution to the emergence of ESP is said to have come from the area of educational psychology where putting learners and their attitudes at the heart of learning was said to be important (Rodgers, 1969 as cited in Nodoushan, 2007).

Learners were found to have varied 'needs' and 'interests' which impact their motivation and which in turn affects their success in language learning. Thus, developing courses with contents that match up with the needs and interests of learners became very important (Hutchinson and Waters, 1987).

2.3. Development of ESP

ESP is said to have undergone three developmental stages and now it is in the fourth with a fifth phase emerging. These stages will be discussed under this subsection.

2.3.1 Register Analysis

The underlying assumption being different areas of specialty comprise different registers, the purpose was identifying the grammar and vocabulary of scientific and technical English with a view to developing 'syllabuses' in which these items were prioritized (Evans and John, 1998).

Nevertheless, this approach was criticized to be 'an insubstantial basis' for the selection of syllabus items. Even though, register analysis revealed that particular registers (i.e., in EST) favored certain forms, it didn't show differences which were important enough to make it a dominant basis for the selection of syllabus items (Coffee, 1984 as cited in Hutchinson and Waters, 1987).

Register analysis is also criticized for treating language only at a sentence level. It is said that it deprives students of the opportunity of seeing how sentences are combined to form meaning in real communication (Hutchinson and Waters, *ibid*).

2.3.2 Discourse Analysis

According to Crystal (1987, p.419) cited in Abebe Mamo (1994), “discourse refers to a continuous stretch (e.g. of spoken) of language larger than a sentence and discourse analysis denotes the study of patterns of linguistic organization in discourse” (p.24)

At this stage of development, it was believed that the treatment of language should go beyond the sentence level for ' a single sentence' can have varied meanings depending upon the kinds of sentences that come before or after it and its relative position in a discourse (Hutchinson and Waters, 1987). They exemplify this by making a single sentence follow different sentences and changing its position:

Can I go out to play?
It is raining. (Meaning: refusal of request)
Have you cut the grass yet?
It is raining.(Meaning: reason or excuse)
I think I'll go out for a walk.
It is raining. (Meaning: advice of mild warning against going)
It is raining.
I think I'll go out for a walk. (Meaning: in favor of going)

(P.33-34)

It is also stated that learners encounter problems which result from not being given the opportunity of seeing sentences used in fulfilling different communicative acts. Allen and Widdowsen (1978) in Mackay and Mountford (1978) write:

the difficulties which the students encounter arise not so much from a defective knowledge of the system of English, but from an unfamiliarity with English use, and that consequently their needs cannot be met by a course which simply provides further practice in the composition of sentences, but only by one which develops a knowledge of how sentences are used in the performance of different communicative acts. The approach which we wish to outline represents an attempt to move from an almost exclusive concern with grammatical forms to at least an equal concern with rhetorical functions. (p. 58)

Put briefly, this stage of ESP development witnessed a shift in focus from treating language at a sentence level and focusing 'only' on grammar to treating language at a discourse level in order to show how sentences are combined to create meaning. It is also to be noted that there was an assumption that the rhetorical patterns used in different areas of specialty differed.

Thus, the focus of research according to Hutchinson and Waters (ibid) became "identifying the organizational patterns of texts and to specify the linguistic means by which these patterns are signaled. These patterns would then form the syllabus of the ESP course" (p.11).

Examples of patterns which can form an ESP course are:

1. Order of importance
2. Comparison and contrast
3. Analogy
4. Exemplification

(Ibid)

2.3.3. Target Situation Analysis

Target situation analysis refers to the process of identifying a target situation followed by a thorough analysis of its linguistic features with a view to make the identified features form an ESP course syllabus (Duan and Gu, 2004).

Taking the linguistic features of a target situation and making them form a syllabus was done in the preceding stages as well but, it was done in a 'piece meal way' (Hutchinson and Waters, 1987). But this stage of ESP's development witnessed an attempt to adopt a systematized mechanism. Munby (1978) came up with a set of procedures which is referred to as the communicative needs processor (CNP for short) which comprises a range of questions to be used for the purpose of identifying target situation needs.

But later it was criticized to be inadequate for being based on a shallow understanding of what 'needs' are. It was based, it is said, on the assumption that all a learner needed was to be able to comprehend and produce the linguistic features of a target situation. The CNP could produce only linguistic items relevant to a target situation; thus, the process of target situation analysis at this stage was said to be 'language centered'. That is to say, it didn't include the learning needs of learners (Hutchinson and Waters, 1987).

2.3.4 Skills and Strategies

Unlike in the case of register analysis, discourse analysis and target situation analysis which focused on the surface linguistic features of a target situation, this stage of development witnessed an attempt to look below the surface forms into the underlying thinking processes in language use (Nodoushan, 2007).

The basic assumption in the skills-centered approach is that there are common reasoning and interpreting processes underlying all language use which help learners to extract meaning from a discourse. It is further said that a focus on specific subject registers is unnecessary in this approach as the underlying processes are not specific to any subject register (ibid).

2.3.5 Learning Centered Approach

All the preceding stages are said to be 'language centered' in that the focus was mostly on drawing content from target situations. Nevertheless, at this stage, ESP took a 'learning-centered approach' which manifested itself in the consideration of learning theories and widening of the concept of needs.

White (1988) writes "ESP has been characterized by a concern with content rather than method... . However, recent work in ESP has shown equal concern with how the learner might most effectively learn" (P.19).

This resulted in recognizing the importance of learning theories.

2.3.6 Learning Theories

According to Hutchinson and Waters (1987) it is "the learning theory which provides the theoretical basis for the methodology by helping us to understand how people learn"(p.23). The adoption of theories manifested itself in the exercises presented in teaching materials: pattern drilling (a reflection of the behaviorist theory), problem solving (a reflection of the cognitive theory) are examples (ibid).

The affective factor is also given high importance. Hutchinson and Waters (ibid) write: "The emotional reaction to the learning experience is the essential foundation for the initiation of the cognitive process" (p .47). Thus, making the learning experience interesting, enjoyable fulfilling etc became very important.

2.3.7 Needs Analysis

The concept of 'needs' came to be viewed as being wider than it had been thought. Distinction is made between target needs and learning needs. Target

needs came to be seen as having further divisions – necessities, lacks and wants: necessities are linguistic features pertinent to a target situation that must be possessed by a learner to communicate effectively in a target situation. Lacks refers to the gap between learners existing proficiency and target proficiency whereas wants refers to what learners feel their needs are (Hutchinson and waters, 1987).

2.3.8 Learning Needs

A number of factors that affect learning or which contribute to effective learning are considered. In general the following questions are used in the analysis of learning needs:

- Why are the learners taking the course?
 - How do the learners learn?
 - What resources are available?
 - Who are the learners?
 - Where will the ESP course take place?
 - When will the ESP course take place?
- (Ibid, p. 62-63)

2.4. The Current Notion of Needs

Experience and research have resulted in broadening of the concept of needs. Thus, what was understood by the concept of needs in earlier times is different from what we understand now.

For instance Munby's (1978) CNP (see section 2.3.3) was criticized for disregarding learning needs. This was because the use of it would provide one only with the linguistic features of a target situation which a learner is required to be able to understand and produce in order to function effectively in a target situation. This clearly reflects the narrow assumption it was based on as to what need is - only the linguistic features pertinent to a target situation (Hutchinson and Waters, 1987).

According to Evans and John (1998), a variety of terms are used to refer to the notion of needs which reflect the factors and perspectives added resulting in the widening of the concept. They present the varied terms used: “objective and subjective (Brindley, 1989), perceived and felt (Berwick, 1989), target situation/goal-oriented and learning, process-oriented and product-oriented (Brindley, 1989)”. (p.123)

The sources of the different types of need mentioned above are stated as follows:

objective and perceived needs are seen as derived by outsiders from facts, from what is known and can be verified, while subjective and felt needs are derived from insiders and correspond to cognitive and affective factors. Thus, 'to be able to follow instructions accurately' is an objective/perceived need. 'To feel confident' is a subjective/ felt need. Similarly, product-oriented needs derive from the goal or target situation and process-oriented needs derive from the learning situation. (Evans & John, 1998, p.123)

2.4.1. Needs Analysis

Needs analysis according to Evans and John (1998) is " the process of establishing the what and how of a course" (P. 121). Even though needs analysis is not unique to ESP, it is both a characteristic feature as well as criterial to it (Robinson, 1991).

Needs analysis today is generally thought of as having two dimensions. There is a goal oriented needs analysis and a process oriented needs analysis.

2.4.1.1 Goal Oriented Needs Analysis

A goal oriented approach to needs analysis begins with the identification of a target situation followed by a rigorous analysis of the language related

activities, functions etc. pertinent to that particular situation with a view to developing a syllabus specification (Van Ek, 1979; Tarone & Yule, 1989).

Works to be mentioned with this regard are Richterich's (1973) 'A Model for the Definition of Adult Language Needs', Van Ek's (1975) Threshold Level And Munby's (1978) Communicative Needs Processor.

When a group of experts tasked with developing a system of communicative language teaching for adult European learners faced the lack of criteria for the selection of items of meaning/use, Richterich (1973) approached the problem from the angle of language needs of the learners. That is, identifying the situations in which learners will use the language and the language activities demanded by the situations can be used as a basis for selecting the relevant functions and notions (Johnson, 1981).

Van Ek (1975) built on Richterich's work and came up with a syllabus specification for adult European learners. This, he did, by way of specifying the target situations in which the learners were supposed to function. He writes:

Specifying a situation means stating the roles a language user has to play, the setting in which he will have to play these roles and the topics he will have to deal with. More technically: by situation we mean the complex of extra linguistic conditions which determine the nature of a language act.
(1979, p.103)

Having specified the situations, language activities which the learners are expected to engage in and the language functions they are expected to fulfill as well as the notions they should be able to handle were to be specified (Van Ek, 1975).

Munby's CNP is meant for analyzing target situations language related demands with a view to developing a syllabus specification. In connection with

this, he writes "... where the purpose for which the target language is required can be identified, the syllabus specification is directly derivable from the prior identification of the communication needs of that particular participant or participant stereotype." (Munby, 1978, p.218).

Nonetheless, the goal oriented approach to needs analysis is said to be deficient in that it focuses only on target ends and not the means to achieve them.

Hutchinson and Waters (1987, p.63) write:

Analysis of target situation needs is concerned with language use. But language use is only part of the story. We also need to know about language learning. Analysis of the target situation can tell us what people do with language. What we also need to know is how people learn to do what they do with language.

It is further said that the environment in which the course will be run and learner related factors which impact the learning process are not taken into account in the goal oriented approach (ibid). Thus, these arguments have paved the way for the development of process-oriented interpretation of needs.

2.4.1.2 Process-oriented Needs Analysis

The process oriented approach to needs analysis focuses on learner related and environmental factors which are believed to impact the achievement of goals.

What a learner brings into a learning situation is also said to be an important aspect that should be addressed. McDonough (1984, p.36) in Hailemariam (1993) writes:

What the learner brings, as an individual, to the situation can be seen as being of two kind. Firstly, (s) he may bring further goals and add to what is being taught and learnt. Secondly, s(he) will bring an experience of, and an attitude to the learning process itself which will of course affect 'how' material is learnt.(p.19)

Getting learners' perspective in analyzing their language needs is believed to be important. Robinson (1991) writes, "... students may have personal aims in addition to (or even in opposition to) the requirements of their studies or jobs" (p.7-8).

Evans and John (1998) relate an experience of a research project conducted in the 1980s which clearly illustrates the importance of considering the learners' perspective as to what their needs are. An analysis of Spanish science researchers' English needs was carried out which showed that all the researchers needed to read in English and some of them needed writing. Based on the finding, a reading course was devised. Nonetheless, having attended the first session, all the learners said that they needed a writing course and not a reading one. They said that as far as reading is concerned, they could read and re read texts by themselves using a dictionary. Thus, the reading course was left out and a writing course was developed for the learners. This clearly shows the importance of incorporating learners' perspective.

The importance of the learners' perspective in needs analysis is also seen in relation to the motivation factor. Hutchinson and Waters (1987) write, "Bearing in mind the importance of learner motivation in the learning process, learner perceived wants can't be ignored"(p.57)

Particular attention is also given to the environment in which a course will be run, Holliday and Cooke (1982) cited in Evans and John (1998) suggest that means analysis be carried out as an adjunct to needs analysis. The two key aspects to be addressed are: the classroom culture and the management infrastructure and culture.

As has been discussed in the previous sections, the concept of needs analysis has widened in line with the broadening of the concept of need. Thus, needs

analysis according to Evans and John (1998) now encompasses the following important aspects:

- A. Professional information about the learners: the tasks and activities learners are/will be using English for-target situation analysis and objective needs.
- B. Personal information about the learners: factors which may affect the way they learn such as previous learning experiences, cultural information, reasons for attending the course and expectations of it, attitude to English - wants, means, subjective needs
- C. English language information about the learners: what their current skills and language use are - present situation analysis- which allows us to assess (D)
- D. the learners' lacks: the gap between (C) and (A)- lacks
- E. language learning information: effective ways of learning the skills and language in (D)- learning needs
- F. professional communication information about (A): knowledge of how language and skills are used in the target situation-linguistic analysis, discourse analysis, genre analysis
- G. What is wanted from the course
- H. Information about the environment in which the course will be run - means analysis. (p.125)

All in all, the process oriented needs analysis focuses on learner related and environmental factors which affect the achievement of goals.

2.5. Works Done on Needs Analysis

There have been few studies done on analyzing the English language needs of students in Ethiopia. This sub section presents the findings of the studies which are concerned with academic English needs of students.

Morris (1982) has studied the academic English language needs of students of Addis Ababa University. She found out that listening and reading were the most important skills needed by the students followed by writing and speaking

respectively. The most important activities the learners engaged in under each macro skill were: a, reading – reading text books and handouts b, writing – writing essay answers and reports c, speaking - participating in class discussion and answering teachers’ questions d, listening – comprehending lectures and listening to instructions.

Hailemaram Kekeba (1993) studied the English language needs of Yared Music School students. He found out that the receptive skills - listening and reading were the most important followed by writing and speaking respectively. As regards the main language activities with in each macro skill, he identified the following activities: a, rereading – reading instructions, text books and hand outs b, writing – taking notes from lectures, and writing answers to exams and writing about composers and compositions c, listening - understanding discussions and recordings and d, speaking – asking and answering questions in class.

Abraham Mena (1993) studied the needs of air craft technicians. He found out that reading is the most important activity followed by listening, speaking and writing respectively.

Abebe Mamo (1994) investigated the English language needs of technical students with special reference to three technical schools. His findings show that reading is first in importance followed by speaking, writing and listening respectively.

This study differs from the above mentioned studies in that it purports to analyze the English language needs of computer science students and in the way the data was analyzed.

CHAPTER THREE

3. Methodology

This section deals with the justification for the choice of subjects for the study and discusses important points about the instruments used.

3.1 Choosing Subjects

For an English course to be helpful or appropriate for students who will have to deal with their specialist courses, the English language related demands of those specialist courses need to be examined. For this reason, all 22 computer science courses offered by the college were considered. Thus, information was gathered about these computer science courses.

It was believed that the most relevant sources of data were those who actually experienced the courses. As such, instructors of every computer science course (i.e. they are 16 in number) and 73 students who took all the courses in question were included in the study.

However, a few words should be said about the students. The original intent of the researcher was to study half of the total number (i.e. 68) students on the list of prospective graduates who were defending their projects. The students were to be chosen on the basis of random sampling.

The dean and owner of the college, Dr. Ahmed Hussein, was very cooperative in that not only did he provide the name list of the students but also told his secretary to make telephone calls telling the students to come on a single day. Nevertheless, only 9 students showed up; rendering the random sampling considered unusable. Thus, the researcher resorted to availability sampling and took the pain of making telephone calls to fix appointments and meet as many students as possible wherever and whenever they agreed to be met which was very time consuming. The result was, of the 68 students, 51 of them were contacted and provided the required data.

It was also learned that there were students other than the prospective graduates who had taken all the computer science courses and who were about to embark on carrying out their projects which were needed as partial fulfillments for their BSC in computer science. Since they have taken all the computer science courses, it was believed that they could provide the required data. Therefore, 22 such students were added making the total number of students 73.

All in all, this study focuses on all (i.e.16) instructors of computer science courses of the college and 73 students who have taken all the computer science courses offered in the college.

3.2 Instruments

Questionnaires and interviews were used in this study. Abebe Mamo's (1994) list of activities were used with some modification. The questionnaires were administered to all 16 teachers and 73 students. Interviews were conducted to cross check the responses that were obtained through the questionnaires. A total of 6 teachers selected on the basis of experience and 7 students were the interviewees. Even though observation is also recommended to be used in carrying out needs analysis, it was not considered in this study as the study focused on 22 computer science courses which were too many for the time available.

Each instrument was tried out on computer science instructors and students belonging to a similar institution, namely CPU College and very minor modification was made; that is, one item was added to the listening activities. This sub section discusses some of the important points relevant to the instruments.

3.2.1 Students' Questionnaire

The questionnaires contained items which asked the students to rank the four language skills according to how important they were to their study of computer science courses. There were also items which asked the students to show the frequency of English language related activities under each macro skill with reference to the computer science courses they took. But the lists of activities during the try out were open ended. This was to enable the students to add activities that may have not been included in the list.

However, it should be noted that unlike the teachers' questionnaires which were course specific the students' questionnaires were not. That is, students were not asked to give information about the particular courses but to give information about the overall language related demand of computer science courses. Seventy three questionnaires were filled and returned.

3.2.2 Teachers' Questionnaire

The teachers' questionnaire comprised questions which asked the ranking in order of importance of the four language skills. The questionnaire also included questions which asked the teachers to show the frequency of English language related activities under each macro-skill. Here again, the list of activities during the try out were open ended so that the teachers could add activities which may not have been included.

However, whereas the student's questionnaire asked about all computer science courses in general, the teacher's questionnaire asked about particular course/s/ an instructor gives. Twenty-two questionnaires were filled by all (i.e. sixteen) instructors.

3.2.3 Teachers' and Students' Interview

The content of the questions asked was basically the same as those of the questionnaire as the purpose of the interview was to cross-check the responses

given to the questionnaires. However, all the questions in the interview were about all computer science courses in general.

The interviewees were asked to rank the four macro skills in their order of importance to students. They were also asked to mention how frequent the activities were engaged in by students. But since the interviewees had to deal with a range of items which were difficult to remember, they were given handouts which contained the list of activities. Moreover, the interviewees were asked to respond using the words in the scale (Very Frequently etc) from the handout when they responded. This was done to make the data quantifiable so that the ranking of the language activities would be possible. This same hand out was used by the interviewer as a checklist. Also, all the interviews were tape recorded.

CHAPTER FOUR

4. Findings and Discussions

This chapter presents the data gathered, states the method of analysis adopted and presents the findings and discussions.

4.1 The Data and its Analysis

The data gathered for the study are presented in a total of twenty tables. Of these, four of them are concerned with the ranking of the four macro skills. The rest of the tables present the rating of the frequencies of English language related activities under each macro skill.

Coming to the analysis, the data which relate to the ranking of the four macro skills were dealt with by assigning different values to each column which was multiplied by the number of respondents which was then added up to yield a reliable number that is used to rank the importance of the skills. This method was adopted as failing to consider the data in all columns could result in wrong conclusion.

As for the data concerned with the English language related activities under each macro skill, a slightly different method was adopted. Taking a look at only the first column to decide on the relative frequency or importance of the activities is not reliable as activities having equal values can wrongly be taken as being equal. But these same activities can have different values in other column /s/ which will mean that they are not equal in frequency. Moreover, all the elements (i.e. headings) of the scale can not be taken as having equal value. 'Never' shows that respondents believe that an activity is non-existent. As such, big number under 'Never' does not show high frequency but the absence of an activity. Thus, considering such a number will result in a distorted finding. As a consequence, numbers under 'Never' were considered unimportant for rating.

It should also be noted that the value of activities increases as we go from 'Rarely' leftwards to 'Very frequently'. Due to these reasons, the relative value of each element of the scale should be considered in determining the relative frequency or importance of the activities; hence, the need to assign value to all the elements of the scale which will enable to squeeze out a reliable value which shows the relative importance of activities.

As such, even though the numbers of respondents and their percentages are presented in the tables, it was the sum total of the number of respondents ($\sum NR$ hence forth) multiplied by the assigned value (AV hereafter) which was used for rating the activities.

A comparative analysis between the results found from the analysis of the responses obtained through the teachers' questionnaire and those of the interview was carried out to check for the similarity or otherwise of the findings. And decision was made as to the ranking of the macro skills and the main language activities from under each macro skill were singled out. Those which were singled out as main activities are three activities in a comparable high position. This same procedure was applied to the findings arrived at through the analysis of responses obtained through the students' questionnaire and those of the interview.

In the end, the results of the two comparative analyses were compared and conclusions made; that is, the four macro skills were put in their order of importance and the main English language related activities listed.

4.1.1 Teachers' Questionnaire

Each computer science instructor of the college was given a questionnaire which consisted questions about the particular course/s/ he gives. The questions demanded the ranking of the four skills according to their importance to students. The questionnaire also comprised questions which asked the

teachers to show how frequently students engage in the range of activities under each macro skill. The acquired data and the findings are summarized in the following tables:

Table 1: Ranking the skills

Skills	Ranking the Skills												Total			Rank
	1 AV=4			2 AV=3			3 AV=2			4 AV=1						
	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	Σ NR	Σ %NR	Σ NRXAV	
Listening	16	73%	64	1	5%	3	0	0%	0	5	23%	5	22	100%	72	1 st
Speaking	2	9%	8	5	23%	15	3	14%	6	12	55%	12	22	100%	41	4 th
Writing	3	14%	12	4	18%	12	12	55%	24	3	14%	3	22	100%	51	3 rd
Reading	1	5%	4	12	55%	36	7	32%	14	2	9%	2	22	100%	56	2 ^{ndh}

Key:

1=First in rank

2=Second in rank

3=Third in rank

4=Least in rank

NR=Number of respondents

AV=Assigned Value

Σ =Sum

As can be seen from the table the highest product of $N\Sigma R$ and AV is that of listening which is 72 putting the skill first in importance. The second highest product is 56 which corresponds to the reading skill and shows that it is second in importance. The third highest product of ΣNR and V which is 51 corresponds to the writing skill rendering it third in importance. The smallest product is 41 which shows that speaking is the least in importance.

Table 2: Rating the Frequency of Listening Activities

Listening Activities	How often did you engage in them?															Total			Rank
	Very frequently AV=4			Frequently AV=3			Sometimes AV=2			Rarely AV=1			Never AV=0						
	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	ΣNR	Σ%NR	ΣNRXAV	
Listening to lecture	20	91%	80	0	0%	0	1	5%	2	1	5%	1	0	0%	0	22	100%	83	1 st
Listening to teacher's explanation	16	73%	64	4	18%	12	0	0%	0	1	5%	1	1	5%	0	22	100%	77	2 nd
Listening to class discussion	6	27%	24	9	41%	27	6	27%	12	1	5%	1	0	0%	0	22	100%	64	3 rd
Listening to teacher's instruction	7	32%	28	7	32%	21	7	32%	14	1	5%	1	0	0%	0	22	100%	64	3 rd
Listening to E-learn CD	1	5%	4	2	9%	6	9	41%	18	5	23%	5	5	23%	0	22	100%	33	4 th

Key:

NR= Number of respondents

AV= Assigned Value

Σ= Sum

Σ NR= Sum of number of respondents

Table 2 presents data which enables one to put the listening activities in line with how frequent they are in the following order, listening to lecture being the most important followed by listening to teacher's explanation, listening to class discussion and listening to teachers instruction (both assume third place) and listening to E-learn CD respectively.

Table 3: Rating the Frequency of Speaking Activities

Speaking Activities	How often did you engage in them?															Total			Rank
	Very frequently AV=4			Frequently AV=3			Sometimes AV=2			Rarely AV=1			Never AV=0						
	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	ΣNR	Σ%NR	ΣNRXAV	
Asking questions	8	36%	32	7	32%	21	6	27%	12	1	5%	1	0	0%	0	22	100%	66	1 st
Answering questions	7	32%	28	9	41%	27	5	23%	10	1	5%	1	0	0%	0	22	100%	66	1 st
Giving oral reports	2	9%	8	6	27%	18	6	27%	12	6	27%	6	2	9%	0	22	100%	44	4 th
Participating in class discussion	3	14%	12	4	18%	12	10	45%	20	4	18%	4	1	5%	0	22	100%	48	3 rd
Participating in group discussion	5	23%	20	8	36%	24	6	27%	12	1	5%	1	2	9%	0	22	100%	57	2 nd

The order of speaking activities in line with how frequent they are according to table 3 is as follows: asking questions and answering questions assume first place followed by participating in group discussion, participating in class discussion, and giving oral reports respectively.

Table 4: Rating the Frequency of Writing Activities

Writing Activities	How often did you engage in them?															Total			Rank
	Very frequently AV=4			frequently AV=3			Sometimes AV=2			Rarely AV=1			Never AV=0						
	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	ΣNR	Σ%NR	ΣNRXAV	
Making lecture notes	10	48%	40	2	10%	6	7	33%	14	2	10%	2	0	0%	0	21	100%	62	1 st
Making notes from books	4	19%	16	7	33%	21	10	48%	20	0	0%	0	0	0%	0	21	100%	57	4 th
Writing reports, essays	5	24%	20	6	29%	18	4	19%	8	4	19%	4	2	10%	0	21	100%	50	5 th
Writing other assignments	6	29%	24	8	38%	24	6	29%	12	1	5%	1	0	0%	0	21	100%	61	2 nd
Writing test answers	7	33%	28	6	29%	18	5	24%	10	3	14%	3	0	0%	0	21	100%	59	3 rd

As can be seen from table 4 the writing activities assume the following order - making lecture notes is the most frequent activity followed by writing other assignments, writing test answers, making notes from books and writing reports or essays respectively.

Table 5: Rating the Frequency of Reading Activities

Reading Activities	How often did you engage in them?															Total			Rank
	Very frequently AV=4			Frequently AV=3			Sometimes AV=2			Rarely AV=1			Never AV=0						
	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	ΣNR	Σ%NR	ΣNRXAV	
Reading lecture notes	15	71%	60	3	14%	9	2	10%	4	1	5%	1	0	0%	0	21	100%	74	1 st
Reading text books	8	38%	32	9	43%	27	4	19%	8	0	0%	0	0	0%	0	21	100%	67	2 nd
Reading handouts	6	29%	24	11	52%	33	4	19%	8	0	0%	0	0	0%	0	21	100%	65	3 rd
Reading technical manuals	3	15%	12	4	20%	12	4	20%	8	6	30%	6	3	15%	0	20	100%	38	5 th
Reading texts on a computer	3	14%	12	8	38%	24	8	38%	16	2	10%	2	0	0%	0	21	100%	54	4 th

Table 5 clearly shows that the reading activities can be put in the following order according to how frequent they are starting from the most frequent and going to the least frequent: reading lecture notes is the most frequent activity followed by reading textbooks, reading handouts, reading texts on a computer and reading technical manuals.

4.1.2 Teachers Interview

Six computer instructors were interviewed. The acquired data and the results of the analysis are presented below:

Table 1: Ranking the Skills

Skills	Ranking the Skills												Total			Rank
	1 AV=4			2 AV=3			3 AV=2			4 AV=1						
	NR	% NR	N R XAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	Σ NR	Σ %NR	Σ NRXAV	
Listening	3	50%	12	1	17%	3	2	33%	4	0	0%	0	6	100%	19	2 nd
Speaking	0	0%	0	0	0%	0	0	0%	0	6	100%	6	6	100%	6	4 th
Writing	1	17%	4	1	17%	3	4	67%	8	0	0%	0	6	100%	15	3 rd
Reading	2	33%	8	4	67%	12	0	0%	0	0	0%	0	6	100%	20	1 st

Key:

1=First in rank

2=Second in rank

3=Third in rank

4=Least in rank

NR=Number of respondents

AV= Assigned value

Σ =Sum

The table shows that reading is the most important having 20 as its product of Σ NR and AV. Listening comes second in that the product of its Σ NR x V is 19. Third in importance is writing since the product of its Σ NR x V is 15. The smallest product of Σ NR and AV which is 6 corresponds to speaking making it fourth in importance.

Table 2: Rating the Frequency of Listening Activities

Listening Activities	How often did you engage in them?															Total			Rank
	Very frequently AV=4			Frequently AV=3			Sometimes AV=2			Rarely AV=1			Never AV=0						
	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	ΣNR	Σ%NR	ΣNRXAV	
Listening to lecture	6	100%	24	0	0%	0	0	0%	0	0	0%	0	0	0%	0	6	100%	24	1 st
Listening to teacher's explanation	4	67%	16	2	33%	6	0	0%	0	0	0%	0	0	0%	0	6	100%	22	2 nd
Listening to class discussion	2	33%	8	4	67%	12	0	0%	0	0	0%	0	0	0%	0	6	100%	20	3 rd
Listening to teacher's instruction	1	17%	4	3	50%	9	2	33%	4	0	0%	0	0	0%	0	6	100%	17	4 th
Listening to E-learn CD	0	0%	0	1	17%	3	3	50%	6	1	17%	1	1	17%	0	6	100%	10	5 th

Key:

NR= Number of respondents

AV= Assigned Value

Σ= Sum

Σ NR= Sum of number of respondents

Table 2 presents data which enables one to put the listening activities in line with how frequent they are in the following order, listening to lecture is the most frequent activity followed by listening to teacher's explanation, listening to class discussion, listening to teacher's instruction and listening to E-learn CD respectively.

Table 3: Rating the Frequency of Speaking Activities

Speaking Activities	How often did you engage in them?															Total			Rank
	Very frequently AV=4			Frequently AV=3			Sometimes AV=2			Rarely AV=1			Never AV=0						
	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	ΣNR	Σ%NR	ΣNRXAV	
Asking questions	1	17%	4	3	50%	9	2	33%	4	0	0%	0	0	0%	0	6	100%	17	1 st
Answering questions	1	17%	4	3	50%	9	2	33%	4	0	0%	0	0	0%	0	6	100%	17	1 st
Giving oral reports	0	0%	0	1	17%	3	5	83%	10	0	0%	0	0	0%	0	6	100%	13	3 rd
Participating in class discussion	0	0%	0	2	33%	6	3	50%	6	1	17%	1	0	0%	0	6	100%	13	3 rd
Participating in group discussion	1	17%	4	2	33%	6	3	50%	6	0	0%	0	0	0%	0	6	100%	16	2 nd

The order of the speaking activities in line with how frequent they are according to table 3 is as follows: both asking questions and answering questions have assumed first place, participating in group discussion comes second followed by giving oral reports and participating in class discussion both of which have assumed third place.

Table 4 Rating the Frequency of Writing Activities

Writing Activities	How often did you engage in them?															Total			Rank
	Very frequently AV=4			Frequently AV=3			Sometimes AV=2			Rarely AV=1			Never AV=0						
	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	ΣNR	Σ%NR	ΣNRXAV	
Making lecture notes	3	50%	12	2	33%	6	0	0%	0	1	17%	1	0	0%	0	6	100%	19	1 st
Making notes from book	0	0%	0	4	67%	12	2	33%	4	0	0%	0	0	0%	0	6	100%	16	4 th
Writing reports, essays	0	0%	0	1	17%	3	5	83%	10	0	0%	0	0	0%	0	6	100%	13	5 th
Writing other assignments	0	0%	0	5	83%	15	1	17%	2	0	0%	0	0	0%	0	6	100%	17	3 rd
Writing test answers	1	17%	4	4	67%	12	1	17%	2	0	0%	0	0	0%	0	6	100%	18	2 nd

Table 4 shows that the writing activities have assumed the following order: respectively making lecture notes is the most frequent activity followed by writing test answers, writing other assignments, making notes from books and writing reports and essays.

Table 5 Rating the Frequency of the Reading Activities

Reading Activities	How often did you engage in them?															Total			Rank
	Very frequently AV=4			Frequently AV=3			Sometimes AV=2			Rarely AV=1			Never AV=0			ΣNR	Σ%NR	ΣNRXAV	
	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV				
Reading lecture notes	5	83%	20	1	17%	3	0	0%	0	0	0%	0	0	0%	0	6	100%	23	1 st
Reading text books	4	67%	16	1	17%	3	1	17%	2	0	0%	0	0	0%	0	6	100%	21	2 nd
Reading handouts	2	33%	8	3	50%	9	0	0%	0	0	0%	1	17%	0	6	100%	17	3 rd	
Reading technical manuals	0	0%	0	2	33%	6	0	0%	0	2	33%	2	2	33%	0	6	100%	8	4 th
Reading texts on a computer	1	17%	4	3	50%	9	2	33%	4	0	0%	0	0	0%	0	6	100%	17	3 rd

As can be seen from table 5 the reading activities have assumed the following order according to how frequent they are - reading lecture notes is the most frequent activity followed by reading text books, both reading handouts and reading texts on a computer have assumed third place followed by reading technical manuals.

4.1.3 Comparison between Findings

Whereas, the findings from both the analysis of the data obtained through the questionnaire and those of the interview placed consistently the skills of writing and speaking third and fourth respectively, the findings regarding the ranking of the skills of reading and listening fluctuates between first and second.

This is also consistent at least in as far as the relative higher importance of the two skills is concerned, that is in comparison with the productive skills. But from the fact that their rank fluctuates between first and second it could be deduced that these two skills are more or less equal in importance. As a consequence, it could be concluded that the finding has put reading and listening in first place followed by writing and speaking respectively.

As regards the identification of the main activities under the listening skill, the findings arrived at from both analyses is very consistent. Hence, the main activities are: listening to lecture, listening to teachers' explanation and listening to class discussion.

When it comes to the speaking activities, the finding can be said to be very consistent. The main activities are asking questions, answering questions and participating in group discussion.

Coming to the activities under writing, the findings are nearly the same. Hence, it the main activities are making lecture notes, writing other assignments and writing test answers.

The rating of the reading activities too is very consistent. And it is concluded that reading lecture notes, reading text books and reading handouts are the main activities.

4.1.4 Students' Questionnaire

Questionnaires were administered to all 73 students. The questionnaires asked the students to rank the four macro skills according to how important they were to their studies. Students were asked to show how frequently they had to engage in the English language related activities under each macro skill. This subsection presents the data gathered and discusses the findings arrived at.

Table 1: Ranking the Skills

Skills	Ranking the Skills												Total			Rank
	1 AV=4			2 AV=3			3 AV=2			4 AV=1						
	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	Σ NR	Σ %NR	Σ NRXAV	
Listening	29	42%	116	19	28%	57	16	23%	32	5	7%	5	69	100%	210	2 nd
Speaking	2	3%	8	8	12%	24	10	14%	20	49	71%	49	69	100%	101	4 th
Writing	6	9%	24	23	33%	69	31	45%	62	9	13%	9	69	100%	164	3 rd
Reading	36	52%	144	22	32%	66	9	13%	18	2	3%	2	69	100%	230	1 st

Key:

1=First in rank

2=Second in rank

3=Third in rank

4=Least in rank

NR=Number of respondents

AV= Assigned Value

Σ =Sum

As can be seen from the table reading is first in importance as it has the highest product of Σ NR and AV which is 230. Listening comes second in importance as it corresponds to the second highest product which is 210. Third in importance is the writing skill as its product of Σ NR and AV is 164. The smallest product is that of speaking which is 101 making the skill fourth in importance.

Table 2: Rating the Frequency of Listening Activities

Listening Activities	How often did you engage in them?															Total			Rank
	Very frequently AV=4			Frequently AV=3			Sometimes AV=2			Rarely AV=1			Never AV=0			Σ NR	Σ% NR	Σ NR X AV	
	NR	% NR	NR X AV	NR	% NR	NR X AV	NR	% NR	NR X AV	NR	% NR	NR X AV	NR	% NR	NR X AV				
Listening to lecture	51	70%	204	20	27%	60	0	0%	0	1	1%	1	1	1%	0	73	100%	265	1 st
Listening to teacher's explanation	43	59%	172	25	34%	75	3	4%	6	2	3%	2	0	0%	0	73	100%	255	2 nd
Listening to class discussion	17	23%	68	27	37%	81	21	29%	42	7	10%	7	1	1%	0	73	100%	198	4 th
Listening to teacher's instruction	24	33%	96	30	41%	90	11	15%	22	6	8%	6	2	3%	0	73	100%	214	3 rd
Listening to E-learn CD	5	7%	20	18	25%	54	21	29%	42	19	26%	19	10	14%	0	73	100%	135	5 th

Key:

NR= Number of respondents

AV= Assigned Value

Σ= Sum

Σ NR= Sum of number of respondents

Table 2 shows that the listening activities have assumed the following order: listening to lecture is the most frequent activity followed by listening to teacher's explanation, listening to teacher's instruction listening to class discussion and listening to E-learn CD respectively.

Table 3: Rating the Frequency of Speaking Activities

Speaking Activities	How often did you engage in them?															Total			Rank
	Very frequently AV=4			Frequently AV=3			Sometimes AV=2			Rarely AV=1			Never AV=0						
	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	ΣNR	Σ%NR	ΣΣNRXAV	
Asking questions	14	19%	56	19	26%	57	34	47%	68	6	8%	6	0	0%	0	73	100%	187	2 nd
Answering questions	9	12%	36	28	38%	84	33	45%	66	3	4%	3	0	0%	0	73	100%	189	1 st
Giving oral reports	6	8%	24	7	10%	21	32	44%	64	24	33%	24	4	5%	0	73	100%	133	5 th
Participating in class discussion	8	11%	32	26	36%	78	30	41%	60	8	11%	8	1	1%	0	73	100%	178	4 th
Participating in group discussion	12	16%	48	27	37%	81	24	33%	48	9	12%	9	1	1%	0	73	100%	186	3 rd

The order of the speaking activities in line with how frequent they are according to table 3 is as follows: answering questions being the most frequent is followed by asking questions, participating in group discussion, participating in class discussion and giving oral reports.

Table 4: Rating the Frequency of Writing Activities

Writing Activities	How often did you engage in them?															Total			Rank
	Very frequently AV=4			Frequently AV=3			Sometimes AV=2			Rarely AV=1			Never AV=0						
	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	ΣNR	Σ%NR	ΣNRXAV	
Making lecture notes	38	52%	152	18	25%	54	12	16%	24	4	5%	4	1	1%	0	73	100%	234	1 st
Making notes from book	17	23%	68	27	37%	81	18	25%	36	9	12%	9	2	3%	0	73	100%	194	4 th
Writing reports, essays	7	10%	28	22	30%	66	29	40%	58	13	18%	13	2	3%	0	73	100%	165	5 th
Writing other assignments	14	19%	56	43	59%	129	11	15%	22	4	5%	4	1	1%	0	73	100%	211	2 nd
Writing test answers	16	22%	64	36	49%	108	9	12%	18	6	8%	6	6	8%	0	73	100%	196	3 rd

Table 4 clearly shows that the writing activities have assumed the following order according to how frequent they are: making lecture notes is the most important followed by writing other assignments, writing test answers, making notes from books and writing reports or essays respectively.

Table 5: Rating the Frequency of Reading Activities

Reading Activities	How often did you engage in them?															Total			Rank
	Very frequently AV=4			Frequently AV=3			Sometimes AV=2			Rarely AV=1			Never AV=0						
	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	ΣNR	Σ%NR	ΣNRXAV	
Reading lecture notes	45	62%	180	21	29%	63	4	5%	8	2	3%	2	1	1%	0	73	100%	253	1 st
Reading text books	32	44%	128	29	40%	87	11	15%	22	0	0%	0	1	1%	0	73	100%	237	2 nd
Reading handouts	33	45%	132	29	40%	87	8	11%	16	2	3%	2	1	1%	0	73	100%	237	2 nd
Reading technical manuals	16	22%	64	26	36%	78	24	33%	48	5	7%	5	2	3%	0	73	100%	195	4 th
Reading texts on a computer	26	36%	104	25	34%	75	14	19%	28	7	10%	7	1	1%	0	73	100%	214	3 rd

The order of the reading activities in line with how frequent they are according to table 5 is as follows: reading lecture notes being the most frequent activity is followed by reading text books and reading hand outs both of which have assumed second place. Reading texts on a computer has assumed third place followed by reading technical manuals.

4.1.5 Students' Interview

Seven students were interviewed. The acquired data and the results of the analysis are presented below:

Table 1: Ranking the Skills

Skills	Ranking the Skills												Total			Rank
	1 AV=4			2 AV=3			3 AV=2			4 AV=1			Σ NR	Σ %NR	Σ NRXAV	
	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV				
Listening	3	43%	12	2	29%	6	2	29%	4	0	0%	0	7	100%	22	1 st
Speaking	0	0%	0	1	14%	3	0	0%	0	6	86%	6	7	100%	9	4 th
Writing	2	29%	8	1	14%	3	3	43%	6	1	14%	1	7	100%	18	3 rd
Reading	2	29%	8	3	43%	9	2	29%	4	0	0%	0	7	100%	21	2 nd

Key:

1=First in rank

2=Second in rank

3=Third in rank

4=Least in rank

NR=Number of respondents

AV= Assigned value

Σ =Sum

As can clearly be seen from the table listening is first in importance as it has the highest product of Σ NR and V which is 22. The second highest product which is 21 corresponds to the skill of reading, putting it second in importance. Writing comes third in importance having 18 as its product of its Σ NR and AV. Fourth in importance is speaking 9 being the product of its Σ NR and AV.

Table 2: Rating the Frequency of Listening Activities

Listening Activities	How often did you engage in them?															Total			Rank
	Very frequently AV=4			Frequently AV=3			Sometimes AV=2			Rarely AV=1			Never AV=0						
	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	ΣNR	Σ%NR	ΣNRXAV	
Listening to lecture	6	86%	24	1	14%	3	0	0%	0	0	0%	0	0	0%	0	7	100%	27	1 st
Listening to teacher's explanation	4	57%	16	3	43%	9	0	0%	0	0	0%	0	0	0%	0	7	100%	25	2 nd
Listening to class discussion	2	29%	8	2	29%	6	3	43%	6	0	0%	0	0	0%	0	7	100%	20	4 th
Listening to teacher's instruction	3	43%	12	2	29%	6	2	29%	4	0	0%	0	0	0%	0	7	100%	22	3 rd
Listening to E-learn CD	0	0%	0	2	29%	6	2	29%	4	2	29%	2	1	14%	0	7	100%	12	5 th

Key:

NR= Number of respondents

AV= Assigned Value

Σ= Sum

Σ NR= Sum of number of respondents

As can be seen from the table, the most frequent activity is listening to lecture followed by listening to teacher's explanation, listening to teachers' instruction, listening to class discussion and listening to E-learn CD.

Table 3: Rating the Frequency of Speaking Activities

Speaking Activities	How often did you engage in them?															Total			Rank
	Very frequently AV=4			Frequently AV=3			Sometimes AV=2			Rarely AV=1			Never AV=0						
	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	ΣNR	Σ%NR	ΣNRXAV	
Asking questions	1	14%	4	1	14%	3	5	71%	10	0	0%	0	0	0%	0	7	100%	17	3 rd
Answering questions	0	0%	0	4	57%	12	3	43%	6	0	0%	0	0	0%	0	7	100%	18	2 nd
Giving oral reports	1	14%	4	3	43%	9	3	43%	6	0	0%	0	0	0%	0	7	100%	19	1 st
Participating in class discussion	1	14%	4	4	57%	12	1	14%	2	1	14%	1	0	0%	0	7	100%	19	1 st
Participating in group discussion	2	29%	8	2	29%	6	2	29%	4	1	14%	1	0	0%	0	7	100%	19	1 st

Table 3 presents data which enables to put the speaking activities in line with how frequent they have been in the following order: three activities have been rated as being the most important. These are giving oral reports, participating in class discussion and participating in group discussion. Next to these answering questions and asking questions have assumed second and third place respectively.

Table 4: Rating the Frequency of Writing Activities

Writing Activities	How often did you engage in them?															Total			
	Very frequently AV=4			Frequently AV=3			Sometimes AV=2			Rarely AV=1			Never AV=0						
	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	ΣNR	Σ%NR	SNRXAV	Rank
Making lecture notes	5	71%	20	1	14%	3	1	14%	2	0	0%	0	0	0%	0	7	100%	25	1 st
Making notes from book	2	29%	8	2	29%	6	2	29%	4	1	14%	1	0	0%	0	7	100%	19	3 rd
Writing reports, essays	1	14%	4	2	29%	6	3	43%	6	1	14%	1	0	0%	0	7	100%	17	4 th
Writing other assignments	3	43%	12	4	57%	12	0	0%	0	0	0%	0	0	0%	0	7	100%	24	2 nd
Writing test answers	4	57%	16	3	43%	9	0	0%	0	0	0%	0	0	0%	0	7	100%	25	1 st

As can be seen from the table making lecture notes and writing test answers are the most frequent activities followed by writing other assignments making notes from books and writing reports or essays respectively.

Table 5: Rating the Frequency of Reading Activities

Reading Activities	How often did you engage in them?															Total			Rank
	Very frequently AV=4			Frequently AV=3			Sometimes AV=2			Rarely AV=1			Never AV=0						
	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	NR	%NR	NRXAV	ΣNR	Σ%NR	ΣNRXAV	
Reading lecture notes	6	86%	24	1	14%	3	0	0%	0	0	0%	0	0	0%	0	7	100%	27	1 st
Reading text books	3	43%	12	3	43%	9	1	14%	2	0	0%	0	0	0%	0	7	100%	23	3 rd
Reading handouts	5	71%	20	2	29%	6	0	0%	0	0	0%	0	0	0%	0	7	100%	26	2 nd
Reading technical manuals	2	29%	8	3	43%	9	2	29%	4	0	0%	0	0	0%	0	7	100%	21	4 th
Reading texts on a computer	1	14%	4	5	71%	15	1	14%	2	0	0%	0	0	0%	0	7	100%	21	4 th

Table 5 shows that reading lecture notes is the most frequent activity followed by reading handouts and reading text books respectively. Reading technical manuals and reading texts on a computer have both taken fourth place.

4.1.6 Comparison between Findings

What has been found out from the analysis of the data obtained through the questionnaire has been confirmed to a large extent by what has been found out from the analysis of the data obtained through the interview.

With regard to ranking the macro skills, the finding arrived at through the analysis of the responses obtained through the questionnaire has placed writing and speaking third and fourth respectively which has also been confirmed by the finding from the analysis of the data obtained through the interview.

As for reading and listening the finding of the analysis of the data obtained through the questionnaire has placed them first and second respectively the reverse of which is the case when it comes to the finding arrived at by analyzing the data obtained through the interview.

Coming to the identification of the main activities under the listening skill, the finding that resulted from analyzing the responses from the questionnaire is consistent with that of the interview. As such, it could be concluded that the main listening activities are listening to lecture, listening to teacher's explanation and listening to class discussion.

As for the speaking activities, the findings show that there is little consistency. However, it could be safe to say that answering questions, asking questions and participating in group discussion are the main speaking activities.

As regards writing activities, it could be said that the findings arrived at is more or less consistent. It could be concluded that making lecture notes, writing other assignments and writing test answers are the main activities.

Coming to reading activities a more or less consistent finding has been arrived at. It could be said that the main activities are reading lecture notes, reading textbooks and reading handouts.

4.1.7 Comparison between Teachers' and Students'

Responses

As has been discussed under subsection 4.1.3, the teachers' responses obtained through questionnaires and interviews were compared. Similarly, the students' responses obtained through questionnaires and interviews were compared (see section 4.1.7). Finally, comparison was made between the results of the two comparisons and the results show that they are in complete agreement. This section presents and discusses the results of the comparison.

4.1.7.1 Ranking the Skills

The comparison between the results of the analysis of the teachers' and students' responses showed that the receptive skills – reading and listening are the most important followed by writing and speaking respectively. This finding is in complete agreement with what Morris (1982) and Hailemariam Kekebea (1993) found out in their respective settings.

4.1.7.2 Main Language Activities

The findings concerned with the main language activities are presented below:

4.1.7.2.1 Listening Activities

The results show that the main listening activities are listening to lecture, listening to teacher's explanation and listening to class discussion. Morris (1982) also identified that comprehending lectures was one main listening activity for the students she studied. The other important listening activity she identified is listening to instructions which the subjects of this study really engage in but this activity was not found to be a main one Hailemariam Kekeba

(1993) identified understanding discussion as one important activity which was also identified to be one main listening activity for the subjects of this study.

4.1.7.2.2 Speaking Activities

The results show that the main speaking activities for the learners are asking questions answering questions and participating in group discussion. Similarly, Hailemariam Kekeba (1993) identified asking and answering questions in class were the main speaking activities for the students he studied. Morris (1982) found out that participating in class discussion and answering teachers' questions were the main activities for the students she studied.

4.1.7.2.3 Writing Activities

The results show that the main writing activities are: making lecture notes, writing other assignments and writing test answers. Hailemariam Kekeba (1993) also identified that making lecture notes and writing answers were main writing activities for the students he studied. Morris (1982) also singled out writing essay answers as a main activity for the students she studied.

4.1.7.2.4 Reading activities

The results revealed that the main reading activities for the learners are reading lecture notes, text books and handouts. Morris (1982) also identified reading text books and handouts as main activities for the students she studied. Similarly, Hailmariam Kekeba (1993) identified these two activities as main ones for the students he studied.

4.1.8 A General Analysis of the Text Book in Use

The book which is currently being used in the institution is entitled "Writing for Academic Purposes" written by Solomon Ghebre- Giorgis (1991). It consists of six units of which primary focus is the development of students writing skills. The topics of the units are: Paragraph Building, General Description, Scientific Description, Narration, Exposition, Argument and Persuasion.

By merely looking at the title of the book and the topics of the units, one can say that the book is meant, at least primarily, to develop the writing skills of students for academic purposes.

But it should also be taken into account that it is difficult to say a skill exists in complete isolation from other skills. As such, it would be wrong to say that the book totally excludes other skills. This can clearly be seen when we read the objectives of the book and survey its content. The objectives read:

- a, To write effectively the specific varieties of discourse needed within the student's subject areas including essays, exams, term papers, project reports and theses.
- b, to read efficiently the sort of materials (e.g. handouts, etc.) demanded by the student's subject areas and reproduce them as notes, outlines, summaries, etc.
- c, to listen, understand and reproduce as notes, structured outlines, simple summaries, etc. topics given as lectures within the student's subject areas.
- d, to explain these notes, outlines, summaries, etc. In simple and clear English that can be understood by non-specialists.

However, when one sees the content of the book what one finds is that only writing and reading are included. Writing takes precedence over reading in that the latter is used to develop the skill of writing. Writing assumes the dominant position in that every unit discusses the writing techniques in detail. More over, the students are required to write essays at the end of each unit.

As for the language activities with in the writing skill, the text book in use includes, writing exams and other assignments – essays, term papers project reports. This can be said to be in line with the finding stated in the previous section. However, the sample texts and the topics learners are expected to write about have nothing to do with computer science.

The reading passages are presented followed by comprehension questions. But the dominant activities related to the texts are writing activities. Students are required to examine the writing techniques adopted in the reading texts and then are asked to write their own essays.

With regard to language activities with in the reading skill, the book in use includes practice in reading different types of materials which can help learners to read handouts and text books. But here again, the content of the materials is unrelated to computer science.

The skill of listening, though mentioned in the objective is not covered at all as there are no listening texts and listening activities. As for the speaking skill, no such lessons or activities are included in the book.

In conclusion, the finding shows that only two skills - writing and reading are treated in the book but the skills of listening and speaking are not part of the course book in use.

The finding that has resulted from the general analysis of the course book in use is inconsistent with the findings discussed in the previous subsection. While it has been found out that the skill of reading and listening are the most important skills followed by writing and speaking, the course book in use is dominated by the skill of writing followed by the skill of reading. As such, the course book in use largely fails to meet the needs of learners.

CHAPTER FIVE

5. Summary and Recommendations

5.1 Summary of Findings

The summary of the findings arrived at from the analysis of the data are presented below:

1. As far as the importance of the macro skills is concerned, the finding indicates that the receptive skills - listening and reading are the most important followed by writing and speaking respectively.
2. With regard to the English language related activities under each macro skill, the findings have shown that the main language activities are:
 - a, listening – listening to lecture, listening to teachers explanation and listening to class discussion
 - b, speaking - asking questions, answering questions and participating in group discussions
 - c, writing – making lecture notes, writing other assignments and writing test answers.
 - d, reading- reading lecture notes, reading text books and reading hand outs are the main activities.
3. The course book in use largely fails to meet the needs of the learners in terms of coverage in that it excludes the skills of listening and speaking. It also fails in that it gives precedence to writing which is not in line with the finding arrived at. That is, in the finding discussed above writing assumes third place.

5.2 Recommendation

Based on the findings of the study, the following recommendations have been made:

1. As the course book in use has been found to fail in meeting the needs of the learners, it is suggested that a new English course be developed which includes all the four macro skills giving them the relative weight which is consistent with the findings of this study.
2. It is recommended that the selection of language items and skills should consider the activities identified by this study. In other words, language items and skills which will enable the learners to perform the identified activities should be included in the course.

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APPENDIX 1

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APPENDIX 2

List of Computer Science Courses Considered in the study

Course Code	Course Title
CS 211	ICT Fundamentals
CS 221	Computer Programming I
CS 222	Computer programming II
CS 223	Windows Programming
CS 224	Objective Oriented Programming
CS 226	Introduction to UNIX
CS 301	Logic Design
CS 302	Computer Organization & Assembly Lang. Programming
CS 321	Data structures & Algorithms Analysis
CS 322	Web Design & Development

CS 341	Database management Systems
CS 342	Databases Programming
CS 343	Systems Analysis & Design
CS 363	Operating Systems
CS 461	Computer Networks
CS 415	Focusing Areas in ICT
CS 446	Object Oriented Software Engineering
CS 485	Information Retrieval
CS 488	Artificial Intelligence
CS 497	Geographic Information Systems
CS 498	Remote Sensing
CS 500	Senior Project

APPENDIX 3

Teachers' Questionnaire (Original)

Dear Respondents'

This questionnaire is intended for collecting data about the academic English language needs of computer science students. The required data is of vital importance for the success of this study which is a partial fulfillment for a Masters degree in TEFL. As such, the value of this questionnaire relies on your genuine responses. So please respond to all the items truthfully.

Thank you

I. Personal Information

Please give the following information about yourself

- a. Sex : Male _____ Female _____ (use tick)

b. Teaching experience _____

II. English language Needs

2.1 In relation to English language, how would you rank the importance of the four skills listed below to students who take the course you give?

Please, show by writing 1-4, 1 being the most important and 4 the least

2.1.1 Listening _____

2.1.2 Speaking _____

2.1.3 Writing _____

2.1.4 Reading _____

2.2 In relation to the course you give how often do students need to engage in the activities listed below? Please use the following scale and circle the corresponding number.

1= Very frequently 2= Frequently 3= Sometimes 4= Rarely
5= Never

	Activities	1	2	3	4	5
No	Listening activities in English	1	2	3	4	5
1	Listening to lecture	1	2	3	4	5
2	Listening to teacher's explanation	1	2	3	4	5
3	Listening to class discussions	1	2	3	4	5
4	Listening to teacher's instructions	1	2	3	4	5

Please add any listening activities not included in the list and rank them in the same way you did for the above activities. Use the space provided

5		1	2	3	4	5
6		1	2	3	4	5
7		1	2	3	4	5
8		1	2	3	4	5
9		1	2	3	4	5
10		1	2	3	4	5

No	Speaking activities in English	1	2	3	4	5
1	Asking questions	1	2	3	4	5
2	Answering questions	1	2	3	4	5
3	Giving oral reports	1	2	3	4	5
4	Participating in whole class discussions	1	2	3	4	5
5	Participating in pair/group discussion	1	2	3	4	5

Please add any speaking activities not included in the list and rank them in the same way you did for the above activities. Use the space provided

6		1	2	3	4	5
7		1	2	3	4	5
8		1	2	3	4	5
9		1	2	3	4	5
10		1	2	3	4	5

No	Writing activities in English	1	2	3	4	5
1	Making lecture notes	1	2	3	4	5
2	Making notes from books	1	2	3	4	5
3	Writing reports, essays	1	2	3	4	5
4	Writing other assignments	1	2	3	4	5
5	Writing test answers	1	2	3	4	5

Please add any writing activities not included in the list and rank them in the same way you did for the above activities. Use the space provide

6		1	2	3	4	5
7		1	2	3	4	5
8		1	2	3	4	5
9		1	2	3	4	5
10		1	2	3	4	5

No	Reading activities in English	1	2	3	4	5
1	Reading lecture notes	1	2	3	4	5
2	Reading text books	1	2	3	4	5
3	Reading handouts	1	2	3	4	5
4	Reading technical manuals	1	2	3	4	5
5	Reading texts on a computer	1	2	3	4	5

Please add any reading activities not included in the list and rank them in the same way you did for the above activities. Use the space provided

6		1	2	3	4	5
7		1	2	3	4	5
8		1	2	3	4	5
9		1	2	3	4	5
10		1	2	3	4	5

APPENDIX 4

Teachers' Questionnaire (Revised)

Dear Respondent,

This questionnaire is intended for collecting data about the academic English language needs of computer science students which will be useful for developing an appropriate course. Moreover, the required data is of vital importance for the success of this study which is a partial fulfillment for a Masters degree in TEFL. As such, the value of this questionnaire relies on your genuine responses. So please respond to all the items truthfully.

Thank you

I. Personal Information

Please give the following information about yourself

- c. Sex : Male _____ Female _____ (use tick)
- d. Qualification: _____
- e. Teaching experience: _____

II. English language Needs

2.1 In relation to English language, how would you rank the importance of the four skills listed below to students who take the course you give (course number)?

Please, show by writing 1-4, 1 being the most important and 4 the least

2.1.1 Listening _____

2.1.2 Speaking _____

2.1.3 Writing _____

2.1.4 Reading _____

2.2 In relation to the course you give (course number) how often do students need to engage in the activities listed below? Please use the following scale and circle the corresponding number.

1= Very frequently 2= Frequently 3= Sometimes 4= Rarely
5= Never

	Activities	<i>How frequently do students need to engage in them?</i>				
No	Listening activities in English					
1	Listening to lecture	1	2	3	4	5
2	Listening to teacher's explanation	1	2	3	4	5
3	Listening to class discussions	1	2	3	4	5
4	Listening to teacher's instructions	1	2	3	4	5
5	Listening from E-learn CD	1	2	3	4	5

	Speaking activities in English	<i>How frequently do students need to engage in them?</i>				
1	Asking questions	1	2	3	4	5
2	Answering questions	1	2	3	4	5
3	Giving oral reports	1	2	3	4	5
4	Participating in whole class discussions	1	2	3	4	5
5	Participating in pair/group discussion	1	2	3	4	5
	Writing activities in English	<i>How frequently do students need to engage in them?</i>				
1	Making lecture notes	1	2	3	4	5
2	Making notes from books	1	2	3	4	5
3	Writing reports, essays	1	2	3	4	5
4	Writing other assignments	1	2	3	4	5
5	Writing test answers	1	2	3	4	5

	Reading activities in English	<i>How frequently do students need to engage in them?</i>				
1	Reading lecture notes	1	2	3	4	5
2	Reading text books	1	2	3	4	5
3	Reading handouts	1	2	3	4	5
4	Reading technical manuals	1	2	3	4	5
5	Reading texts on a computer	1	2	3	4	5

APPENDIX 5

Students' Questionnaire (Original)

Dear respondents,

This questionnaire is intended for collecting data about the academic English language needs of Computer Science Students. The required data is of vital importance for the success of this study which is a partial fulfillment for a Masters degree in TEFL. As such, the value of this questionnaire relies on your genuine responses. So please respond to all the items truthfully.

Thank you

I. Personal Information

Please give the following information about yourself. Use tick “√” in the space provided

1.1 Sex : Male _____ Female _____

1.2 Academic year : 1st _____ 2nd _____ 3rd _____ 4th _____

II. English Language Needs

2.1 In relation to English, how would you rank the importance of the four skills listed below have been to your study of courses other than English? Please show by writing 1-4, 1 being the most important and 4 the least.

2.1.1 Listening _____

2.1.2 Speaking _____

2.1.3 Writing _____

2.1.4 Reading _____

2.2 How often did you need to do each of the following activities while taking courses other than English?

Please use the following scale and circle the corresponding number

1= Very frequently 2= Frequently 3= Sometimes 4= Rarely
5= Never

	Activities	1	2	3	4	5
No	Listening activities in English	1	2	3	4	5
1	Listening to lecture	1	2	3	4	5
2	Listening to teacher's explanation	1	2	3	4	5
3	Listening to class discussions	1	2	3	4	5
4	Listening to teacher's instructions	1	2	3	4	5

Please add any listening activities not included in the list and rank them in the same way you did for the above activities. Use the space provided

5		1	2	3	4	5
6		1	2	3	4	5
7		1	2	3	4	5
8		1	2	3	4	5
9		1	2	3	4	5
10		1	2	3	4	5

No	Speaking activities in English	1	2	3	4	5
1	Asking questions	1	2	3	4	5
2	Answering questions	1	2	3	4	5
3	Giving oral reports	1	2	3	4	5
4	Participating in whole class discussions	1	2	3	4	5
5	Participating in pair/group discussion	1	2	3	4	5

Please add any speaking activities not included in the list and rank them in the same way you did for the above activities. Use the space provided

6		1	2	3	4	5
7		1	2	3	4	5
8		1	2	3	4	5
9		1	2	3	4	5
10		1	2	3	4	5

No	Writing activities in English	1	2	3	4	5
1	Making lecture notes	1	2	3	4	5
2	Making notes from books	1	2	3	4	5
3	Writing reports, essays	1	2	3	4	5
4	Writing other assignments	1	2	3	4	5
5	Writing test answers	1	2	3	4	5

Please add any writing activities not included in the list and rank them in the same way you did for the above activities. Use the space provide

6		1	2	3	4	5
7		1	2	3	4	5
8		1	2	3	4	5
9		1	2	3	4	5
10		1	2	3	4	5

No	Reading activities in English	1	2	3	4	5
1	Reading lecture notes	1	2	3	4	5
2	Reading text books	1	2	3	4	5
3	Reading handouts	1	2	3	4	5
4	Reading technical manuals	1	2	3	4	5
5	Reading texts on a computer	1	2	3	4	5

Please add any reading activities not included in the list and rank them in the same way you did for the above activities. Use the space provided

6		1	2	3	4	5
7		1	2	3	4	5
8		1	2	3	4	5
9		1	2	3	4	5
10		1	2	3	4	5

APPENDIX 6

Students' Questionnaire (Revised)

Dear respondent,

This questionnaire is intended for collecting data about the academic English language needs of Computer Science Students which will be useful for developing an appropriate course. The required data is of vital importance for the success of this study which is a partial fulfillment for a Masters degree in TEFL. As such, the value of this questionnaire relies on your genuine responses. So please respond to all the items truthfully.

Thank you

I. Personal Information

Please give the following information about yourself. Use tick “√” in the space provided

1.1 Sex : Male _____ Female _____

1.2 Academic year : 1st _____ 2nd _____ 3rd _____ 4th _____

II. English Language Needs

2.1 How would you rank the importance of the four English language skills listed below have been to your study of computer science courses other than English? Please show by writing 1-4, 1 being the most important and 4 the least.

2.1.1 Listening _____

2.1.2 Speaking _____

2.1.3 Writing _____

2.1.4 Reading _____

2.2 How often did you need to engage in each of the following activities while taking courses other than English?

Please use the following scale and circle the corresponding number

1= Very frequently 2= Frequently 3= Sometimes 4= Rarely
5= Never

	Activities	How often did you engage in the activities?				
No	Listening activities in English					
1	Listening to lecture	1	2	3	4	5
2	Listening to teacher's explanation	1	2	3	4	5
3	Listening to class discussions	1	2	3	4	5
4	Listening to teacher's instructions	1	2	3	4	5
5	Listening from E-Learn CD	1	2	3	4	5

	Speaking activities in English	How often did you engage in the activities?				
1	Asking questions	1	2	3	4	5
2	Answering questions	1	2	3	4	5
3	Giving oral reports	1	2	3	4	5
4	Participating in whole class discussions	1	2	3	4	5
5	Participating in pair/group discussion	1	2	3	4	5

	Writing activities in English	How often did you engage in the activities?				
1	Making lecture notes	1	2	3	4	5
2	Making notes from books	1	2	3	4	5
3	Writing reports, essays	1	2	3	4	5
4	Writing other assignments	1	2	3	4	5
5	Writing test answers	1	2	3	4	5

	Reading activities in English	How often did you engage in the activities?				
1	Reading lecture notes	1	2	3	4	5
2	Reading text books	1	2	3	4	5
3	Reading handouts	1	2	3	4	5
4	Reading technical manuals	1	2	3	4	5
5	Reading texts on a computer	1	2	3	4	5

APPENDIX 7

Interview for Teachers (Original)

1. In relation to the course you give how would you rank the importance of the four language skills (listening, speaking, reading and writing) to your students?
2. Please take a look at the list of English language related activities on the handout.
 - 2.1 Are there any activities which the course you give does not demand the learners to be engaged in? Please name them.
 - 2.2 Are there any activities that your think have been left out? Please mention them.
 - 2.3 When taking the course you give how frequently do you think students need to engage in the activities listed under each skill? Please name them starting from the most frequently needed to the least frequently needed.

APPENDIX 8

Interview for Teachers (Revised)

1. In relation to English how would you rank the importance of the four language skills (listening, speaking, reading and writing) to your students?
2. Please take a look at the list of English language related activities on the handout.
 - 2.1. When taking the course you give how frequently do you think students need to engage in the activities listed under each skill? Use the hand out to answer the questions. Please go item by item and answer using the words in the scale.

APPENDIX 9

Interview for students (Original)

Questions:

1. How would you rank the importance of the four English Language skills (listening, speaking, reading and writing) have been to your study of computer science courses? Please name them in their order of importance. .
2. Please look at the list of English language related activities on the handout.
 - 2.1.1. How frequently did you need to engage in the English language related activities listed under each skill when you took computer science courses? Please go item by item and answer using the words in the scale.
 - 2.1.2. Are there any English language related activities that you think have been left out? Please mention them
 - 2.1.3. How frequently did you need to engage in the English language related activities listed under each skill when you took computer science courses? Please go items by item and answer using the words in the scale.

APPENDIX 10

Interview for students (Revised)

Questions:

1. How would you rank the importance of the four English Language skills (listening, speaking, reading and writing) have been to your study of computer science courses? Please name them in their order of importance. .
2. Please look at the list of English language related activities on the handout.
 - 2.2. How frequently did you need to engage in the English language related activities listed under each skill when you took computer science courses? Please go item by item and answer using the words in the scale.

Appendix 11

Hand out and check list

(Used in interviewing teachers and students)

I. English Language skills: a. Listening ____ b. Speaking ____
c. Writing ____ d. Reading ____

II. Activities

No	Listening activities in English	Very frequently	Frequently	Sometimes	Rarely	Never
1	Listening to lecture					
2	Listening to teacher's explanation					
3	Listening to class discussions					
4	Listening to teacher's instructions					
5	Listening from E-learn CD					

No	Speaking Activities	Very frequently	Frequently	Sometimes	Rarely	Never
1	Asking questions					
2	Answering questions					
3	Giving oral reports					
4	Participating in whole class discussions					
5	Participating in pair/group discussion					

No	Writing activities in English	Very frequently	Frequently	Sometimes	Rarely	Never
1	Making lecture notes					
2	Making notes from books					
3	Writing reports, essays					
4	Writing other assignments					
5	Writing test answers					

No	Reading activities in English	Very frequently	Frequently	Sometimes	Rarely	Never
1	Reading lecture notes					
2	Reading text books					
3	Reading handouts					
4	Reading technical manuals					
5	Reading texts on a computer					