Towards a Comprehensive Framework for Designing English for Medical Purposes Materials and Courses for the Students of Medicine in the Context of Iran

A thesis submitted to the University of Hyderabad in partial

fulfilment of the requirements for the award of the degree of
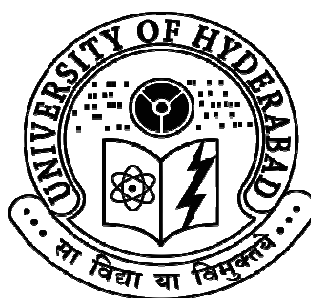
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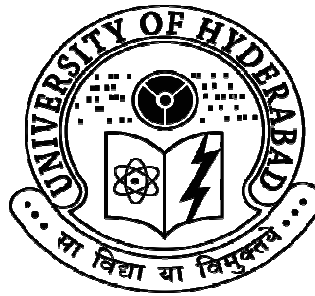
in

Applied Linguistics

by
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Declaration

This is to declare that I, **Mortaza Aslrasouli**, have carried out the research embodied in the present thesis entitled **"Towards a Comprehensive Framework for Designing English for Medical Purposes Materials and Courses for the Students of Medicine in the Context of Iran"** under the supervision of **Prof. Panchanan Mohanty** for the full period prescribed under Ph.D. ordinances of the university.

I declare to the best of my knowledge that no part of this thesis was earlier submitted for the award of any degree to any other university or institution.

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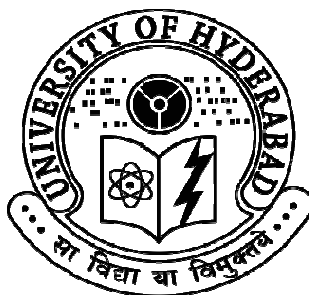
Certificate

This is to certify that the research work embodied in the present thesis entitled

"Towards a Comprehensive Framework for Designing English for Medical Purposes

Materials and Courses for the Students of Medicine in the Context of Iran" submitted by

Mortaza Aslrasouli (Reg. No: 08HAPH04) has been pursued for the full period prescribed

under Ph.D. ordinances of the university. His thesis represents his own independent research

work which has not been submitted to any other university or institution for the award of any

degree.

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Head
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To my

Parents, Wife and

Daughter

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Acronyms and Abbreviations

AWL	Academic Word List
CALL	Computer Assisted Language Learning
CNP	Communicative Needs Processor
EAP	English for Academic Purposes
EFL	English as a Foreign Language
EGAP	English for General Academic Purposes
ELT	English Language Teaching
EMP	English for Medical Purposes
EOP	English for Occupational Purposes
EPP	English for Professional Purposes
ESAP	English for Specific Academic Purposes
ESP	English for Specific Purposes
EST	English for Science and Technology
EVP	English for Vocational Purposes
FL	Foreign Language
IELTS	International English Language Testing System
LSA	Learning Situation Analysis
MAWL	Medical Academic Word List
NA	Needs Analysis
PSA	Present Situation Analysis
RAs	Research Articles
SAMT	(Persian) Centre for Research and EAP Material Development
SILL	Strategy Inventory for Language Learning
SL	Second Language
TBL	Task Based Language Learning
TOEFL	Test of English as a Foreign Language
TSA	Target Situation Analysis

Chapter One

Introduction

Chapter One: Introduction

1.1. Background

Iranian students of medicine, in order to be active participants in their discourse community, need to have a good command of communicative skills in English which is based on an understanding of the cognitive, social and linguistic demands of their specific academic discipline and cultural contexts. These students have to gain fluency in the conventions of English language academic discourses to understand their discipline and to successfully navigate their learning. The response of the language teaching profession to these demands, according to Hyland and Hamp-Lyons (2002), has been the development over the past 25 years of a new field in the teaching of English as a Second/Foreign Language in universities and other academic settings: the field of English for Academic Purposes (EAP). In this concern, developing appropriate EAP materials which can fulfil the requirements of Iranian students of medicine and empower them with enough communicative ability is a major challenge for materials developers.

In Iran, students who come to university share the same background with regard to language of instruction and general curriculum. The language of instruction at all levels (primary, secondary, and tertiary) is Persian and the variety of their mother tongues is very small compared with, for example, India. Students receive English instruction at the age of twelve for seven years before they go to university (English is taught as a subject within the curriculum). However, language teaching at secondary level in Iran has been very inefficient and has emphasized gaining knowledge about language rather than using the language for

genuinely communicative purposes. As a result, students lack the ability to put the language they learn to use outside the language teaching context.

Moreover, students with limited L2 proficiency, which is mainly due to the shortcomings of ELT in Iran, are required to embark on EAP and ESP courses and to read some of content-course bibliographies in English which presupposes extensive background knowledge. This compounded problem is particularly acute in the first years of their studies, since students are not familiar with the academic jargon and conceptual issues of their respective fields. At university, they take a three-credit general English and, then, a two- or three-credit ESP course at undergraduate levels and another three-credit ESP course at post-graduate levels.

EAP/ESP instruction in Iran does not require merely more instruction, rather, more importantly, it needs a different instruction. To meet these expectations, the First National Conference, organized by the Foreign Languages Department of SAMT (2005) – the Center for Research and Development in Humanities – was a turning point. SAMT, as the only national body in EAP materials development proved its determination to revitalize and upgrade the status of EAP/ESP in Iran by organizing such a comprehensive conference and, then, establishing specialized committees of committed professors and supporting them in undertaking pioneering projects. This initiative by SAMT has been encouraging and promising in the view of Iranian scholars: "Many years ago, when I was caught in the middle of what was happening on the scene of ESP in this country, I looked and said that was the end of ESP. After these many years I have not been able to change my mind, but seeing the number and topics of the many papers offered to be read and the enthusiasm of the

participants in this seminar, I am hoping to see that it was the end of an affair, and we are starting a new romance"(Banan Sadeghian 2005).

Regarding the status of English in Iran, since the language of instruction at all stages of education is Persian, Iranian students do not appreciate the importance of English in their immediate context. English is not a decisive factor in their career and social life. Even in education it is not a means of achieving superiority as it is, for example, in India or most of other countries. Students' exposure to English, to a large extent, is restricted to English classes. English as a Foreign Language (EFL) in Iran offers students few chances to use English in their daily lives outside their English classes. Therefore, issues related to motivation, effort, improvement, interest, goals, speed of acquisition and even the necessity of learning the language are much more complicated in an EFL context such as Iran. However, considering the growth of international relations of Iranian society with other nations and the extended interest towards today's growing technology and science throughout the world, learning English language as an international language has found a greater importance compared to previous years.

1.2. ESP/EAP activities in Iran

In a review of ESP/EAP activities in Iran, Yarmohmmadi (2005) observes, during the 60s and 70s we witnessed a great deal of English teaching and learning activities in Iran. Iran-America society and the British Council were active at their full capacity in terms of offering General English classes, conducting teacher training summer courses and workshops, and providing consultations to the Ministry of Education and the universities among many other things. Major Iranian universities established scientific and cultural relations with institutions in

America and England, for example, Shiraz University with the University of Pennsylvania, Ferdowsi University with Georgetown University, Isfahan Technical University and Tehran University with the University of Illinois, Tehran Teacher Training College with Brigham Young University, and Tabriz University with the British Council.

In line with the current trend of the time, register-analysis-based type of material was produced in Isfahan Technical University and Tehran University. The Tehran project directed by Ron Cowan and Katherine Aston headed by the late Dr. Mehri Ahi was very extensive and they published five pilot editions: two volumes for medical students, two for the students of science and technology and one for students of business. The Tabriz project was very extensive. They worked within the framework of conceptual/rhetorical or discourse put into practice by Selinker, Mary Trimble, Todd Trimble and others in America (Selinker & Trimble, L. 1976; Trimble, M.T., Trimble, L. & Drobnik 1978) and by Widdowson and his colleagues in England as appeared in *English in Focus Series* (Allen & Widdowson 1974). Tony Dudley-Evans and Martin Bates, prominent ESP writers, started their professional career in Tabriz. Due to politico-economic reasons, as Banan Sadeghian (2005) observes, the development of ESP in Iran was so rapid that the second International ESP Seminar was held in Isfahan and the seeds for the publication of the *Nucleus* series (edited by Tony Dudley-Evans and Martin Bates, published by Longman from1976-1980) was cultivated in Tabriz University. It is good to know, as Yarmohammadi (2005) notes, that the majority of the compilers and even the teachers of the Tehran and Tabriz projects were British or American (direct hire or Peace Corps volunteers). This was unfortunate, because when they left the country right before the revolution nothing was left of their achievements.

After the revolution all these activities stopped and American and British teachers left the country. The Supreme Council of Cultural Revolution started its operation in 1980. Soon after, curriculum development committees started functioning. In early 1981, Textbook Compilation Committee, which was later changed to Markaz Nashr Daneshghahi, was convened. They had lots of obstacles to overcome. A small number of scholars were under utmost pressure to produce some sort of material for urgent needs as the universities had come back to operation. Shiraz University was asked to compile a text of General English as quickly as possible. The whole project was done within two months! Then different universities were asked to compile textbooks for each college with ESP flavour without providing them with any specific framework. Shiraz University wrote the text for medical students and Tabriz University did the agriculture text, each following their own tastes. At least at micro level, these texts can be characterized as texts with particularly controlled vocabulary close to register-analysis-based ESP materials (Yarmohammadi 2005).

In 1985 the responsibility of materials production fell on SAMT (the official Iranian centre for materials development in humanities). Since then, in addition to 6 volumes of general English, SAMT has published 110 volumes of so-called sub-technical and technical textbooks in different areas of specialization (SAMT 2005).

The contribution of Markaz Nashr Daneshghahi and SAMT need to be appreciated as they have provided opportunities of intellectual exercise for a good number of EAP/ESP practitioners, and at a time of crises, domestic materials were placed at the disposal of our teaching community.

1.3. Context of the problem

> *"At the outset I would like to claim that language teaching in Iran does not follow any specific purposes – i.e. it can be characterized as language for no specific purposes. The first and the most important thing we have to embark on is to verify and operationalize the objectives of language teaching and learning in Iran. This is strategic to our national development."* (Yarmohammadi 2005)

The problems and challenges faced by EAP/ESP practitioners in Iran can be divided into the following factors:

1.3.1. ESP/EAP/EMP coursebooks and methodology

Understandably, as mentioned in 1.2, SAMT textbooks have not satisfied Iranian students' needs as they are not based on a thorough analysis of the students' needs. This analysis includes an assessment of the current level of knowledge students possess and determining the target situation. The analysis also includes considering the means, students' perceptions, learning styles, strategies, language processing approaches, social context and educational background. Domain experts as the major source of information for target situation analysis have not been consulted.

According to Farhady (2006), the then existing books, entitled ESP, were inadequate, ineffective, and in some cases with obvious typographical and content-related errors. The condition of the books was thought to be below the dignity of university education. … The idea was not to develop new materials or to renovate the field. Nor was it to utilize theoretical bases in or apply research findings to the textbooks. The main purpose was to make reasonably acceptable books available to the students at the shortest time possible.

Soleimani (2006), in a critical review of published SAMT textbooks, identifies the following drawbacks:

1. a gap between the theoretical rationale on which EAP in Iran is founded and what is actually 'materialized' as EAP textbooks;

2. absence of pluralism in task design;

3. low face validity necessary for learner-centered educational settings; and

4. inefficient needs analysis.

Another study by Mazdayasna and Tahririan (2008) notes:

> *"The textbooks follow a rigid format of such instructional exercises and activities as 'pre-reading', 'reading', 'homework' and 'language' exercises for all academic disciplines, with the major focus on reading comprehension skills. In our opinion, the contents of these textbooks are not designed to address the learning needs, wants and desires of Iranian students; the articles are selected mainly on the basis of topic, as being related to the students' field of study, and not on the basis of genre or discourse of the particular discipline. Of the four skills, only reading has been emphasized."*

And the approach taken towards reading, as Soleimani (2006) puts, is basically *text-based:* meaning resides in the text.

Although the bulk of undergraduate level English instruction in Iran deals with teaching EAP, this is of a limited scope and has overlooked the principles underlying course design, which should be viewed as an on-going process to suit students' interests and needs (Sifakis, 2003). In addition, the course applies a text-centered approach and is examination-oriented. After completing their degree programs, most students lack the foreign language proficiency they are expected to have (Mazdayasna and Tahririan 2008).

Manafi Anari (2005) identifies three major drawbacks of ESP practice in Iran: unpreparedness of the majority of students for their ESP courses, the ESP textbooks' unduly high level of difficulty, and inappropriate materials design and development. This indicates

that in spite of the fact that the students take a general English course before their subject-specific English course, their level of general English proficiency (GEP) is low. This is in line with what has also been echoed in the literature on EFL/ESP in Iranian settings (Alavi and Tahririan 1996; Atai 2000;Tahririan 1987 and Tahririan 1990).

English for Medical Purposes (EMP) course books are by no means exceptions and the drawbacks mentioned above apply to them as well (see for example: Suzani 2006; Askari Arani 2005; Mahdavi-Zafarghandi 2005; Gholamy, Aslrasouli, and Mohammad Nia 2005; Dehnad 2005; Sayfouri 2006; Mazdayasna and Tahririan 2008; Haji Seyyed Abolghsem 2006; Mozayan 2006; Maleki 2005 to be discussed later).

1.3.2. Students' level of proficiency in English

Students' level of proficiency in English is an important consideration. It can affect our decisions regarding the content, the type of tasks and activities, ordering, and how much weighting we give to form or function (see proportional syllabus in the review of literature, chapter 2).

In Iran, students take a general English course prior to ESP course but the course is so short and inefficient. One of the major issues Iranian ELT teachers at tertiary level complain about is that students' level of proficiency is so low and inefficient for the academic requirements. So, after a while they find out that their class and teaching is devoted for compensating for the shortcomings of ELT at secondary education.

1.3.3. Immediate or delayed needs and students' motivation

In contrast to ESL contexts such as India where students have immediate needs, Iranian students have delayed needs (see Dudley-Evans & St. John 1988:40&148 for a discussion of

immediate and delayed needs). Meanwhile, in some advanced level and high ranking universities students' needs may fall on the continuum between these two points. This has implications both for timing of ESP courses and students' motivation. Iranian students do not appreciate the importance of English in their immediate context. English is not a decisive factor in their career and social life. Even in education it is not a means of achieving superiority as it is, for example, in India. The language of instruction at all stages of education is Persian. The subject courses, in Iran, are taught and assessed in Persian. Students often do not need English much in the early years of the course, but may well need to consult English sources when they write their dissertation in their final year (see Bates for a discussion of Iran, 1978). Students' motivation and attitude to the learning of English need to be taken into consideration in any language planning and course design.

1.3.4. EFL context

In EFL context, the lower level of exposure to English hinders students' L2 proficiency. Tertiary students in Iran are not equipped with the required linguistic and communicative abilities to embark upon specialized English. As Dudley-Evans and St. John (1998:171) put: "In some situations, where English is a foreign not a second language, the ESP classroom may be almost the only source of English. Materials then play a crucial role in exposing learners to the language, which implies that the materials need to present real language, as it is used, and the full range that learners require".

1.3.5. Management and administration

Holliday (1994:4) distinguishes between BANA (British, Australian, and North American) context in which there has been considerable freedom to develop classroom methodology as a

sophisticated instrument to suit the precise needs of language learners, and TESEP (Tertiary, Secondary, and Primary English Language education in the rest of the world). In TESEP context teaching of English is part of a general curriculum and as such serves the policies and goals of a wider education system. Thus the teaching facilities, hours of instruction, and the class size are affected by the entire education system. "Even the teaching style of the English language teachers is, to some extent, constrained according to the teaching style of peer teachers in other subjects (Salahshoor 2000). Moreover, almost all ELT theory, training and methodology come from the so-called BANA countries and ESL reasoning and methodologies from English-speaking countries are often not applicable to many EFL situations. Teachers in Iran complain about the restrictions imposed by policies and goals of a wider education system and a general curriculum. Over-centralization of educational policies and practices and the endemic inflexibility of system not only stifle innovation but also, as Sheorey (2006:20) puts, create a flow-with-the-current, passivistic resignation among resourceful and well-motivated teachers.

1.3.6. Teachers

As an EAP/ESP teacher your success depends, to some extent, on how your students have been taught by other teachers and how you want to teach them. In planning a language program it is therefore important to know the kinds of teachers the program will depend on and the kinds of teachers needed to ensure that the program achieves its goals.

Most teachers in Iran have very heavy teaching loads or teach in several different institutions for several reasons. This is a major hindrance for innovation and creativity and teachers, as a result, stick to their routine and old materials because trying out new syllabi or

materials means disrupting their routine without offering them any financial or other kind of advantage. There are, of course, few teachers who welcome the chance to try out new syllabuses or materials.

There is another major problem regarding teachers of ESP in Iran. In most universities in Iran, whether the EFL teacher or the specialist in the field should teach ESP course, is the matter of controversy for English language and subject departments and most of the time subject teachers teach ESP. Although subject teachers are familiar with the conceptual framework of the subjects students are supposed to study, they are not trained in English teaching. The classes are restricted to reading the texts and translating them by the subject teachers. Students are assigned to translate some pages from articles related to their subjects. They take on a very passive role and no innovation, creativity, and variety of tasks and activities can be observed in their classes. The subject teachers, also, have major problems in pronunciation. Furthermore, an innovative and resourceful ESP course designer may find it difficult to transfer his rationale and methodology to an unqualified teacher. It should also be mentioned that some language teachers don't volunteer to teach ESP courses since they don't want to disrupt their routine teaching – teaching ESP requires learning about the conceptual and discoursal framework of the subjects students are studying. This requires a lot of time and commitment.

1.3.7. Time availability and the length of the course

Time availability and the length of the course determine whether the course is going to be intensive or extensive. The content, tasks and activities, scope and sequence of the course are

also mainly affected by time and length factors. Scope, according to Richards (2001:149), is concerned with the breadth and depth of coverage of items in the course.

If more importance and time is given to EAP/ESP education, course designers will have much better perspectives on the content specification, sequencing, and breadth and depth of coverage of items in the course. This, also, allows course designers much room for maneuver.

In Iran, ELT/EAP/ESP courses are very short and limited with regard to an EFL context. Undergraduate students take only a 2 or 3-credit course in ESP and postgraduate students take an additional 3-credit course. These courses are offered in the first and second years of their studies.

Figure 1.1 illustrates the English courses presented to students of medicine in Iran. Note: (EGAP=English for General Academic Purposes; EMP1=English for Medical Purposes 1; EMP2=English for Medical Purposes 2).
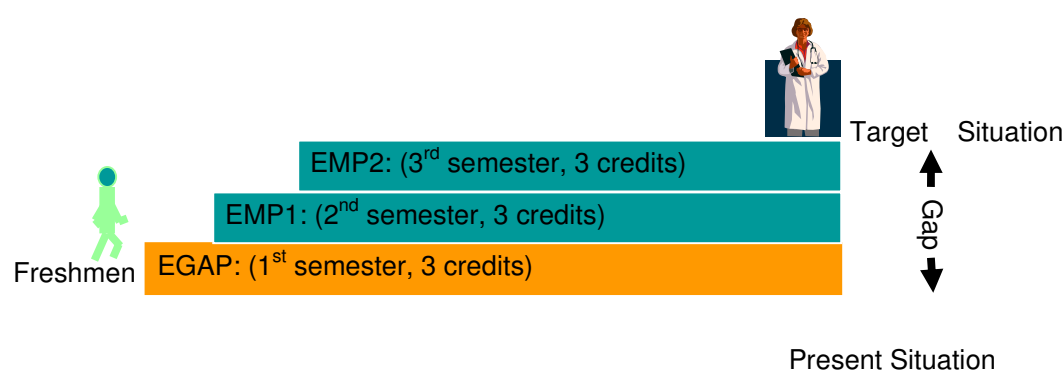
Figure 1.1: Three English courses presented to the students of medicine in Iran

ESP course design in Iran is greatly constrained by the time and length of the course limitations and is a challenge for course designers. They need to take this limitation into consideration along with the fact that the context of Iran is an EFL context and that the language of instruction is not English. The course also needs to compensate for students' low

English proficiency (that was elaborated earlier) along with their academic and specific English requirements.

1.4. Research on English for Medical Purposes (EMP)

1.4.1. Some research on EMP in other countries

As Woods (2006:120) observes, "medicine is widely understood to be a complex and specialized branch of science, and its discourse inevitably features a reliance on equally specialized and complex language. … medical discourse is a professional register that is characterized by archaisms (including many Latin terms), a technical and formal vocabulary, and specialized semantic sets." According to Dudley-Evans and St. John (1998:49), in academic medical journals there are four main genres: the research paper, the review article, the clinical case notes and editorials.

A research by Mungra and Webber (2010) aims at establishing the most frequent types of comments made by peer reviewers to identify the most frequent linguistic problems that Italian medical researchers encounter. Hoekje (2007) elaborates on developing ESP courses to meet the needs of international medical graduates with respect to acculturation, the language and culture of the patient community, the language of the hospital and intelligibility in performing key medical texts. An interesting and practical study by Shi et al. (2001) depicts the development of an English course for medical students based on the transcripts of video and audio tapes of six 1-hour sessions of ward teaching. The tapes helped the researchers identify the linguistic skills students needed in order to achieve various cognitive learning objectives. Alharby (2005) conducts a target situation needs analysis to investigate the English language communicative needs of health professionals in Riyadh area. To help

Chinese medical scientists in writing biomedical research papers, Rongxia and Min (2009) elaborate on the characteristics of biomedical research papers. Bosher and Smalkosk (2002) elaborate on designing a course in health-care communication for immigrant students in the USA. Chia et al. (1999) study the perception of English needs in a medical university in Taiwan. Ferguson (2001) conducts a corpus based study of conditionals in medical discourse. Glick et al. (1998) give an overview of developing an English communication skills course at Hokkaido University at the request of the medical department.

In line with attempts to develop the academic vocabulary lists across different disciplines, some researchers in the field of EMP have tried to develop Medical Academic Word List (MAWL). Baker (1988) analyzed three rhetorical items in medical journal articles and she concluded that rhetorical items were in the category of academic vocabulary and that identifying academic items had some pedagogical implications. Chen and Ge (2007) analyzed the occurrence and distribution of the AWL (Academic Word List) word families in medical RAs (Research Articles). Their findings confirmed that the academic vocabulary had a high text coverage and dispersion throughout a medical research article and served some important rhetorical functions, but they argued that the AWL was far from complete in representing the frequently used medical academic vocabulary in medical RAs and called for efforts in establishing a medical academic word list.

Wang et al. (2008) have carried out a research to develop a Medical Academic Word List (MAWL) of the most frequently used medical academic vocabulary across different sub-disciplines in medical science. They (ibid.) hope the MAWL established in their study to serve as a guide for medical English instructors in curriculum preparation, especially in designing course-books of medical academic vocabulary, and for medical English learners in

setting their vocabulary learning goals of reasonable size during a particular phase of English language learning. 623 word families were ultimately chosen and formed the Medical Academic Word List (see Appendix A).

Dudley-Evans and St. John (1998:49) indicate that in medical English for occupational purposes, there are three main areas of research: the use of English in written medical communication, the delivery of papers and slide presentations in English at international medical conference, and the role of English in doctor/patient interaction. The importance of English in the dissemination of medical research has grown dramatically since the 1960s; Maher (1986) shows that by 1980, 72 per cent of the articles listed in the *Index Medicus* (the index of articles published in medical journals all over the world) were published in English. He also shows that to obtain a wider readership, *domestic* medical journals may be written in English. Spoken interaction between doctors and patients, and dentists and patients (Candlin et al. 1981; Coulthard and Ashby 1976) has been a very fruitful area of research, and one where ESP has had an influence on the subject discipline. Insights from such research have fed into courses on communication with patients, run for native-speaker medical students (Silverman et al. 2005; Skelton 1994; Davis & Fallowfield 1991).

1.4.2. Research on EMP in Iran

With regard to EMP course design and teaching in Iran, Mazdayasna and Tahririan (2008) refer to the inadequacy and rigid format of medical course books. In their opinion, the contents of these textbooks are not designed to address the learning needs, wants and desires of Iranian students. Suzani's (2006) study notes the following problems in the faculties of medicine: 1. Overcrowded classes, 2. Unqualified teachers, 3. Wrong timetable for offering

English courses, 4. Inefficient EMP coursebooks. Askari Arani (2005) notes the medical students' lack of general English skills and their difficulties in coping with EMP and stresses the importance of encouraging learners' initiative and taking over responsibility for their own learning.

Mahdavi-Zafarghandi (2005) investigates why students of dentistry failed not only to understand educational films but also to read EST (English for Science and Technology) texts skillfully after having successfully completed EST courses. He (ibid.) suggests a shift towards integrative language teaching methodology and concludes that the variety of materials through different mediums would be more useful than the focus on one of the skills for language learning in general, and EST development in particular.

Gholamy, Aslrasouli, and Mohammad Nia (2005) elaborate on a process-oriented, interactive EAP project on medical English. They present the rationale behind the content and organization of "Bridging the Gap" authored by (Aslrasouli 2004) and propose an interactive, process-oriented and proportional syllabus. They (ibid.) advocate the inclusion of study skills and strategy training as means of contributing to learners' autonomy and finally report on the pilot implementation and feedback on the course.

Dehnad (2005) suggests the application of graphic organizers as an effective study technique and elaborates on their applications in designing EMP courses. Sayfouri (2006), investigating the EMP course books, refers to the problem of lack of interactive activities and puts forward some suggestions to help material writers publish more fascinating books. Haji Seyyed Abolghsem's (2006) study proves that medical students with conscious knowledge of top-level rhetorical functions of description, definition, and classification from Trimble's (1985) chart developed better ability to comprehend related EST texts. Mozayan's (2006)

study concludes that semantic mapping, or clustering ideas into meaningful units by learners as a during reading activity, can have a significant effect on the improvement of EAP reading comprehension ability of Iranian medical students. As Mozayan (ibid.) puts, it seems that when students are asked to shape their ideas into semantic maps or meaningful units, they are forced to focus more on the language form as well as the content of a text to make their notes.

Maleki (2005) seeks to answer the controversial question of whose job it is to teach ESP. He finds theoretical support for the claim that the language teacher is the one solely qualified for teaching ESP classes. He notes, however, that such a responsibility requires adequate training and experience. This confirms the recommendation of Atai (2002:13) that "EAP instructors reconsider their roles in struggling with EAP contexts and to widen their repertoires of language teaching strategies".

1.5. Statement of the problem

The following is a list of some major problems based on the review of the research on ESP/EAP/EMP and the analysis of the current EMP courses in Iran:

> ➢ The coursebooks developed for the students of medicine in Iran are not based on an efficient needs analysis of students' present situation, learning situation, and target situation.

> ➢ There is a gap between theoretical rationale on which EAP in Iran is founded and what is actually 'materialized' as EAP textbooks.

> ➢ The EMP coursebooks are inefficient (content of the coursebooks are not designed to address the learning needs, wants and desires of Iranian students; the coursebooks have a rigid format; the articles are selected mainly on the basis of topic, as being

related to the students' field of study, and not on the basis of genre or discourse of the particular discipline; there is absence of pluralism in task design and low face validity necessary for learner-centred educational settings; the courses are text-based and examination-oriented; they do not cover the four macro-skills and lack communicative exercises).

➢ The majority of students lack general English and the preparedness for their ESP courses.

➢ After completing their education, most students lack the foreign language proficiency they are expected to have.

To date, there has been no empirical investigation of Iranian medical students' needs. Therefore, EMP teaching and material development in Iran is far from satisfactory and falls short of expectations.

As mentioned earlier, in spite of the gloomy days of EAP/ESP materials development in 80s and 90s in Iran, the 21st century seems to have a promising beginning. The First National Conference, organized by the Foreign Languages Department of SAMT (2005) – the Center for Research and Development in Humanities – was a turning point. This initiative by SAMT has been encouraging and promising in the view of Iranian scholars. As a result, EAP/ESP practitioners have assumed a more active role by letting in the air of modern practical thinking and rethinking in a renewable system and attempting to carry out research-based and localized materials development and course design to satisfy the needs of their local students.

In fact, the idea of undertaking the present study was conceived in 2005 when the researcher was one of the contributors to the conference and got the incentive by witnessing such a national determination. Based on the researcher's background in teaching EGAP

(English for General Academic Purposes) for students of medicine in Iran and publishing an English and study skills coursebook for the students of medicine (Aslrasouli 2004), the researcher set out with the aim of seeking and addressing a fundamental problem in EMP course design and material development in the context of Iran.

In this regard, the first step was to see what has already been done and what problems have been reported within the context of Iran. This would shed light on what needs to be done and how. The researcher's analysis of the problems and research background on EMP in Iran indicated that research-based course design based on a thorough analysis of students' needs was the missing part and EMP practitioners in Iran have not addressed this issue to the best of the researcher's knowledge. The idea was to develop and establish a comprehensive and elaborate framework and guidelines for designing EMP courses and materials for the students of medicine in Iran. This framework needs to cover the specification of goals and objectives, content, and tasks and activities.

Given the goal of this research, there remains the question of what is required to achieve this goal. This goal cannot be achieved unless a thorough needs analysis is conducted. The findings of research from other countries cannot be applied in our context because needs, expectations and student resources vary with each group. This indicates that each particular group in the world is unique, in a sense, and requires a particular course which is based on their particular needs, resources available, social context and educational background.

1.6. The purpose of the study and research questions

The purpose of this study is to develop and establish a framework and guidelines for designing EMP courses and materials for the students of medicine in Iran. To achieve this goal, a needs analysis is required to cover students' present situation, learning situation and target situation by finding answers to the following questions:

A. Skills

1. In the present courses of English for Medical Purposes (EMP), how often are the students of medicine in Iran **expected to use** the skills of speaking, listening, writing, and reading? And how often do they **have difficulty** with each of these skills?

2. How **important to success in Iranian medical students' course of study** are the abilities of speaking English, listening to English, writing English, and reading English?

3. How **important to success in Iranian medical students' field after graduation** are the abilities of speaking English, listening to English, writing English, and reading English?

B. Academic skills

4. How **important** are the following *academic speaking skills* for Iranian students of medicine and how often do they **have problems** with them? (Having accurate pronunciation; Seminar presentation skills; Conversational exchange with patients, nurses, colleagues, etc.; Transferring information from diagrams, pictures, etc. to spoken English)

5. How **important** are the following *academic listening skills* for Iranian students of medicine and how often do they **have problems** with them? (Listening to medical news;

Taking effective notes; Understanding lectures and presentations; Listening to educational medical films)

6. How **important** are the following *academic writing skills* for Iranian students of medicine and how often do they **have problems** with them? (Overall writing ability – using appropriate vocabulary, organization, etc.; Writing medical reports; Writing articles for medical journals; Transferring information from diagrams, tables, pictures, etc. to written English)

7. How **important** are the following *academic reading skills* for Iranian students of medicine and how often do they **have problems** with them? (Reading medical textbooks; Reading medical articles and reports; Reading English newspapers and magazines; Reading and interpreting the visuals such as pictures, tables, diagrams, charts, etc.)

C. Methodology and syllabus

8. When and how long should the EMP courses be offered for the students of medicine in Iran?

9. Does the EGAP course, offered prior to EMP courses, enable students of medicine in Iran to efficiently embark on their EPM courses?

10. Are the present EMP coursebooks based on a careful analysis of students' needs?

11. Do the present EMP coursebooks familiarize students of medicine in Iran with the lexis and genre typical of their field?

12. Considering the course aim and syllabus requirements, are all four skills adequately covered in the present EMP coursebooks?

13. Do the present EMP coursebooks include advice/help on study skills and learning strategies?

14. Do the present EMP coursebooks follow a multi-syllabus approach?

15. Are the present EMP coursebooks appealing to students of medicine in Iran in terms of content and subject matter?

16. Are other materials such as medical reports and articles, films, etc. introduced and practiced along with the main coursebooks? Are such materials required?

17. Are medical academics and professionals satisfied with the academic English abilities of students of medicine?

18. Are students of medicine expected to have satisfactory English skills by their subject teachers? (the issue of transfer climate)

D. Target situation analysis

19. How often do the medical academics and professionals in Iran need English for the following purposes? (A. Reading medical reports and articles; B. Writing medical articles and reports; C. Participating and presenting in seminars; D. Communicating with patients, nurses and colleagues)

1.7. The significance of the study

Students of medicine in Iran need to develop their listening, speaking, and writing ability as well as an advanced reading skill. Oral interaction and written correspondence among Iranian medical professors and students with their counterparts have been increasing steadily. Our medical schools have been conducting a large number of pioneering research projects with promising results. The medical education and affiliated institutions concerned with health care, prevention and treatment are becoming a competitive and booming market in the region. There are a lot of vocational openings in various sub-branches of medicine in the neighbouring countries for Iranian students to fill. To meet all these expectations and educate

students with a profound academic literacy in English, it seems vital to develop research based, localized, and needs based courses to bridge their gaps in English and study skills. As the EAP community in Iran, none of us feels happy to learn that some Iranian university professors or their students prefer to submit a poster presentation to international conferences on the grounds that they are inhibited from orally presenting and participating in the discussion following their presentation, or a significant number of their contributions to the international journals and conferences are rejected merely on the grounds that the referees could not make sense of what they meant.

Given the goal of this research, there remains the question of what is required to achieve this goal. This goal cannot be achieved unless a thorough needs analysis is conducted. The researcher's analysis of the problems and research background on EMP in Iran indicates that research-based course design based on a thorough analysis of students' needs is the missing part and EMP practitioners in Iran have not addressed this issue to the best of the researcher's knowledge. Therefore, EMP teaching and material development in Iran is far from satisfactory and falls short of expectations. This qualitative-quantitative study can provide a solid foundation and framework for ESP/EMP practitioners in Iran.

1.7.1. EMP course design requires a high degree of particularity and practicality

It should be clear from the foregoing that EAP/ESP course design and materials development is a multi-faceted and dynamic process which requires a high degree of particularity and practicality. It, therefore, needs to be based on a comprehensive framework which addresses learner and setting factors and covers all aspects of needs analysis, means analysis, and situation analysis. The fact that needs, situations, means, expectations, and student resources

vary among and within nations indicates that course design and teaching need to be negotiated and dynamic processes and that each community of students in the world is unique, in a sense, and requires a particular course which is based on their particular needs, resources available, social context, and educational background. As Dudley-Evans (2001:ix) notes, "EAP often tends to be a practical affair, and these areas are typically understood in terms of local contexts and the needs of particular students." An English for medical purposes course designed in Italy, for example, can hardly satisfy all the needs of students of medicine in Iran.

To get a clear picture let's consider four different situations at tertiary level. As Dudley-Evans and St. John (1998:34) observe: "The key determinant of what an EAP course should contain is whether or not the subject course is taught in English". They (ibid.) elaborate on four types of situation at tertiary level. They also warn that teachers need to think carefully about whether the success claimed for one kind of situation will transfer to another. The four types of situation according to Dudley-Evans and St. John (1998:35) are:

1. An English speaking country such as UK or USA.

2. An ESL situation where English is the official language of education and is widely spoken, as in former British colonies in Africa or South East Asia.

3. A situation in which certain subjects such as medicine, engineering or science, are officially taught in English, while for other subjects and at other levels of education the national language is used. (One example is Jordan)

4. A situation where all the subject courses are taught in the national language, but English may be important for ancillary reasons. (One example is Iran)

Regarding the four contexts mentioned above, item 4 applies to Iran. In this context, lower level of motivation and exposure to English hinders students' L2 proficiency. This

indicates that, in EFL context, the ESP/EAP course designers and material developers' task becomes very complicated and demanding. Along with discourse and genre specific factors, students' L2 proficiency needs to be addressed in ESP coursebooks. Tertiary students in EFL context (e.g. Iran) are not equipped with the required linguistic and communicative abilities to embark upon specialized English. As Dudley-Evans and St. John (1998:171) put: "In some situations, where English is a foreign not a second language, the ESP classroom may be almost the only source of English. Materials then play a crucial role in exposing learners to the language, which implies that the materials need to present real language, as it is used, and the full range that learners require".

Students' cultural background, L2 proficiency, communicative abilities, goals, needs, and necessities vary in the four situations mentioned. "Clearly, students in different countries may have different difficulties and needs, just as students studying different subjects may" (Jordan 1997:43). Even the workplace setting and activities have implications for needs analysis and course design: Alharby (2005) reports that "Saudi hospitals employ a multinational and a multilingual workforce. According to a Ministry of Health report, Saudi nationals represent only 13% of doctors, 11.2% of nurses, and 38% of medical technicians working in Saudi hospitals and clinics". It goes without saying that oral communication abilities in English are vital for Saudi medical staff in their workplace. This is in stark contrast to Iran where almost 100% of medical staff are Iranian nationals and as a result spoken English in workplace is not so much in demand.

The study of the context of Iran and India, as another example, provides us with so many varieties regarding the students' educational, cultural, linguistic background, on the one

hand and, and the requirements of tertiary education and workplace, on the other, that a full treatment would require at least one book in its own right.

Having considered all the above mentioned factors, we are now in a better position to highlight and justify the importance of needs analysis in conducting this study. **We are aware that a *one-size-fits-all* approach is vulnerable to the demands of specific teaching contexts and the needs of particular learners.** While medical students around the world may share some similar language needs, how they learn the language, the condition in which they are learning and where and how they apply the language are not the same. Therefore, their needs, and how they are prioritised, ordered, and then met will be different.

1.7.2. The importance of English in the dissemination of medical research

> *"Effective communication is the ultimate, but often daunting, purpose of any piece of medical research."*   (Goodman & Edwards 2006:I)

The importance of English in the dissemination of medical research has grown dramatically since the 1960s. Maher (1986) shows that by the 1980, 72 per cent of articles listed in the *Index Medicus* (the index of articles published in medical journals all over the world) were published in English. He also shows that to obtain a wider readership, *domestic* medical journals may be written in English; for example, 33 per cent of medical journals published in Japan were written in English.

In the highly competitive arena of academic publications, authors are particularly concerned about the international prestige of the journals in which they publish, in order to ensure high visibility and reader audience. The visibility of scientific journals is given by an index called the Impact Factor (IF), calculated using reader access as well as citation

frequencies. It is well known that the prestige journals in medicine are published in English and therefore, it is logical that researchers who are non-native speakers of English might feel disadvantaged and marginalized in such competition because they are often unaware of the linguistic conventions and strategies commonly used in English language journals (Belcher 2007;Canagarajh 1996; Gupta et al. 2006; Loonen et al. 2005; Myers 1990; Swales 1990 and more recently Giannine 2008).

It has also been recognized that the quality of communication between doctors and their patients, and between fellow healthcare professionals and colleagues, influences the quality of healthcare (Silverman et al. 2005:vi).

1.8. Concluding remarks

It should be clear from the foregoing that EAP/ESP course design and materials development is a multi-faceted and dynamic process which requires a high degree of particularity and practicality. It, therefore, needs to be based on a comprehensive framework which addresses learner and setting factors and covers all aspects of needs analysis, means analysis, and situation analysis. The fact that needs, situations, means, expectations, and student resources vary among and within nations indicates that course design and teaching need to be negotiated and dynamic processes and that each community of students in the world is unique, in a sense, and requires a particular course which is based on their particular needs, resources available, social context, and educational background. This, also, implies that EAP/ESP materials development should be, to a great extent, a process of local relevance and significance. As a result, EAP/ESP practitioners need to take a more active role and let in the air of modern practical thinking and rethinking in a renewable system and attempt to carry out research-

based and localized materials development and course design to satisfy the needs of their local students. In so doing, the production and presentation of ESP materials need to be the outcome of teamwork if we intend to achieve satisfactory results. Needless to say, empowering students by equipping them with a repertoire of strategies and capacities to become independent, autonomous learners should be a top priority, considering the limited time allocated for EAP/ ESP courses at tertiary level.

Chapter Two

Review of Literature &

Theoretical Foundations

Chapter Two: Review of Literature & Theoretical Foundations

2. Developments in English for Specific Purposes

2.1. Introduction

"Whereas General English Language teaching tends to set out from point A toward an often pretty indeterminate destination, setting sail through largely uncharted waters, ESP aims to speed learners through to a known destination. The emphasis in ESP on going from A to B in the most time- and energy-efficient manner can lead to the view that ESP is an essentially practical endeavor."　　　(Basturkmen 2006:9)

The field of ESP (English for Specific Purposes), in spite of being a recent development in second or foreign language profession, has gained a prominent status and attracted the attention of more and more experts in the field of SL/FL education. What has brought about such a movement is the belief that learning objectives must be geared toward learners' needs. So when a specific group of learners in a specific field of study must participate in certain activities or work on specific topics in the future, why must they spend their time on things which may not directly lead to achieving those objectives or, if it may, through a longer path? "English is now well established as the world language of research and publication. With this tremendous expansion, there has been a parallel growth in the preparation of non-native English speakers (NNSs) for study in English" (Flowerdew and Peacock 2001: xv).

2.2. What is ESP?

Hutchinson and Waters (1987:19) gave ESP a broad description as "an approach to language teaching which is directed by specific and apparent reasons for learning. It is an approach to language learning, which is based on learner need." They (ibid.) suggest that "the foundation

of all ESP is the simple question: Why does this learner need to learn a foreign language?" The answer to this question relates to the learners, the language required and the learning context, and thus establishes the primacy of need in ESP. Robinson (1991) also accepts the primacy of the needs analysis in defining ESP. Her (p.2-4) definition is based on two criterial features common to virtually all ESP programs as well as a number of characteristics that in quantitative terms are likely to occur. The two criterial features are that ESP is

1. goal-oriented
2. based on an analysis of learners' needs

Typical characteristics include:

1. learners are frequently adults;
2. the time period available for learning is often limited;
3. homogeneity (of the subject background or profession) *may* exist.

Dudley-Evans and St John (1998:4-5) give an extended definition in terms of absolute and variable characteristics:

1. Absolute characteristics:

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

2. Variable characteristics

- ESP may be related to or designed for specific disciplines;
- ESP may use, in specific teaching situations, a different methodology from that of general English;

- ESP is likely to be designed for adult learners, either at a tertiary level instruction 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.

Classification of ESP and its implications

An acceptable solution to some difficulties in defining ESP has been to classify ESP initially into two main sub-branches: *English for Academic Purposes* (EAP); and *English for Occupational Purposes* (EOP). Johns (1991) provides the following model for instruction in English:

<div align="center">

English for Specific Purposes (ESP)

⤴   ⤵

English for Occupational Purposes (EOP)   English for Academic Purposes (EAP)

⤴   ⤵   ⤴   ⤵

English for Professional Purposes (EPP)   English for Vocational Purposes (EVP)   English for Academic Purposes (other than EST)   English for Science and Technology (EST)

</div>
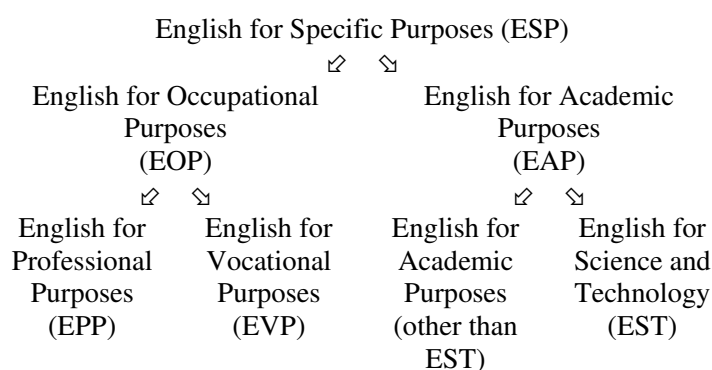
Figure 2.1: Subcategories of English for Specific Purposes (ESP)

"There are obvious overlaps and grey areas in this kind of dividing up of the world of ESP, where one branch merges into another, but the categorization has a common-sense usefulness" (Johnson and Johnson 1988:106). A distinction should also be made between common-core *English for General Academic Purposes* (EGAP) and *English for Specific Academic Purposes* (ESAP) which will be elaborated later.

Another classification by Robinson (1991:3-4) has the advantage of division of the courses according to when they take place. "These distinctions are very important as they will affect the degree of specificity that is appropriate to the course" (Dudley-Evans and St. John 1988:6). As we move from pre-study towards post-study the degree of specificity increases. They (ibid.) observe, a pre-experience or pre-study course will probably rule out any specific work related to the actual discipline or work as students will not yet have the required familiarity with the content (this has implications to English for General Academic Purposes courses in Iran which are offered prior to ESAP courses and will be discussed later), while courses that run parallel to or follow the course of study in the educational institution or workplace will provide the opportunity for specific or integrated work. Figure 2.2 represents an ESP classification by experience (taken from Robinson, 1991:3-4).
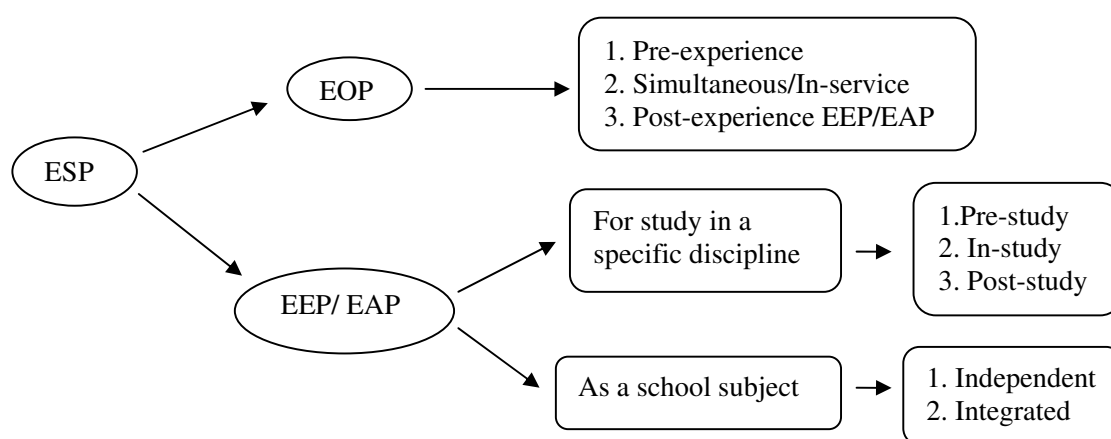
Figure 2.2: ESP classification by experience

The division of courses according to when they take place has three implications. First, this division will affect the degree of specificity that is appropriate to the course (Dudley-Evans and St. John 1998:6). As we move from pre-study towards post-study the degree of specificity increases. Second, the timing of the English course can affect the students' motivation and performance. Research   suggests that more specific and subject-related

courses have been more successful in motivating students and really meeting their needs. Introducing first year students to the basic underlying content schemata of the subject and formal schemata (Carrell, 1983) of the writing tasks expected of students is affective in both motivating students and bringing about improvement in their performance in subject courses. Moreover, as Dudley-Evans and St. John (1998:19) observe, high motivation on the part of learners generally enables more subject specific work to be undertaken; low motivation, however, is likely to lead to a concentration on less specific work. Third, Crofts (1977 cited in Swales 1980:67) suggests that EAP material should concentrate on material that is parallel to the main subject course, but is not actually part of it; topics that could have been included in the main course, but were not. Consulting the head of the department, the subject matter teacher about the subject courses that run with English course simultaneously, can help language teachers cooperate, collaborate and team-teach with subject teachers.

2.3. English for Academic Purposes (EAP)

EAP is normally considered to be one of two branches of English for Specific Purposes (ESP), the other being EOP (English for Occupational Purposes). The distinction between the two major branches of ESP is not clear-cut, however. As Flowedew and Peacock (2001:11) note: "A lot of work conducted in the academy is in fact preparation for the professional occupations students are likely to go into when they graduate and might therefore be classified as EOP."

2.3.1. What is EAP?

English for Academic Purposes is generally defined quite simply as teaching English with the aim of assisting learners' study or research in that language (Flowerdew & Peacock 2001:8; Jordan 1997:1). Hyland (2006:2) presents a more comprehensive view:

> *EAP is, in short, specialized English-language teaching grounded in the social, cognitive and linguistic demands of academic target situations, providing focused instruction informed by an understanding of texts and the constraints of academic contexts.*

This takes practitioners beyond preparing learners for study in English to developing new kinds of literacy: equipping students with the communicative skills to participate in particular academic and cultural contexts. It seeks to provide insights into the structures and meanings of academic texts, the demands placed by academic contexts on communicative behaviours, and the pedagogic practices by which these behaviours can be developed. Hyland (2006:2-5) elaborating on the *changing contexts*, *the response of EAP*, and *continuing challenges* tries to provide a clear picture with regard to the status of EAP:

2.3.2. Changing context

1. There is growing awareness that students, including native English-speakers, have to take on new roles and engage with knowledge in new ways when they enter university. Students need to write and read unfamiliar genres and participate in novel speech events.

2. For many countries producing an annual crop of graduates able to function in employment through English has become an economic imperative. English has become the leading language for the dissemination of academic knowledge. And

these changes have been accompanied by a greater internationalization of higher education.

3. Student populations have become increasingly diverse, particularly in terms of their ethnic and linguistic backgrounds and educational experiences, and this presents significant challenges to university academic staff.

4. The learning needs of all these student groups have a particular focus in the challenges to communicative competence presented by disciplinary-specific study, by modes of teaching and learning, and by changing communicative practices within and outside the academy. In this context, diversity takes on a particular importance.

5. There is now compelling evidence across the academic spectrum that disciplines present characteristic and changing forms of communication which students must learn to master in order to succeed.

6. At the same time, employers and professional bodies seek evidence of graduates' general workplace-relevant communication skills – skills which need increasingly to be adaptable to new, often unpredictable contexts of communication.

7. Further, while in the past the main vehicles of academic communication were written texts, now a broad range of modalities and presentational forms confront and challenge students' communicative competence.

2.3.3. The response of EAP

1. EAP attempts to offer systematic, locally managed, solution-oriented approaches that address the pervasive and endemic challenges posed by academic study to a

diverse student body by focusing on student needs and discipline-specific communicative skills (Hyland 2006:4).

2. These developments have together helped reshape the ways that English language teaching and research are conducted in higher education, with a huge growth in research into the genres and practices of different academic contexts. This has had the result that the concept of a single, monolithic 'academic English' has been seriously undermined and disciplinary variations are acknowledged (Hyland 2000).

3. The global growth of English in academic contexts also means that most teachers of EAP around the world are not native-speakers of English, and this has led to changes in EAP materials and teacher training courses.

4. There is also increasing realization that EAP spans formal education at every level and more attention is now being given to EAP in early schooling years and to postgraduate thesis writing and dissertation supervision. Nor should we see EAP courses as exclusively directed at non-native English speakers. Growing numbers of L1 English speakers who enter higher education without a background in academic communication skills have made EAP a critical aspect of their learning experiences (Hyland 2006:4).

2.3.4. Continuing challenges

This expanding role for EAP has not been entirely smooth and trouble-free. Many EAP courses still lack a theoretical or research rationale and textbooks too often continue to depend on the writer's experience and intuition rather than on systematic research. This situation is changing as we see more interesting and innovative EAP courses being developed which are

based on current pedagogic approaches such as consciousness raising, genre analysis and linked EAP-content modules (Benesch 2001; Johns 1997; Swales and Feak 2000). These have had considerable success, but teachers are aware that a *one-size-fits-all* approach is vulnerable to the demands of specific teaching contexts and the needs of particular learners. As a consequence, there is substantial pedagogic and curricular creativity in local contexts in EAP and a great deal of innovative practice is unsung and not widely disseminated (Hyland 2006:5).

Here we consider the *common core* and *subject-specific* division which have been described as *English for General Academic Purposes* (EGAP) and *English for Specific Academic Purposes* (ESAP).

2.3.5. EGAP and ESAP

An awareness of the distinction between English for General Academic Purposes (EGAP) and English for Specific Academic Purposes (ESAP) is crucial to a full understanding of EAP (Blue 1988). One key issue surrounding the ways we understand and practice EAP is that of *specificity,* or the distinction between EGAP and ESAP. Following an EGAP approach, teachers attempt to isolate the skills, language forms and study activities thought to be common to all disciplines. Dudley-Evans and St. John (1998:41), for instance, include the following activities among such a core: (Listening to lectures; Participating in supervisions, seminars and tutorials; Reading textbooks, articles and other material; Writing essays, examination answers, dissertations and reports).

ESAP refers to the teaching of the features that distinguish one discipline from others. It therefore concerns the teaching of skills and language which are related to the demands of a

particular discipline or department. There have been different views: Some EAP writers such as Hutchinson and Waters (1987), Blue (1988), and Spack (1988) argue against subject-specific teaching on the grounds that our emphasis should be learners and learning rather than on target texts and practices. Dudley-Evans and St. John (1998), on the other hand, suggest that teachers should first help students develop core academic skills with more specific work to be accomplished later. "While this may be true on a pre-sessional course, in all the other situations we feel that students need and welcome a two-pronged attack on their needs and difficulties" (p.42).

Widdowson (1983) relates the specificity of an ESP class to a dichotomy he sets up between *training* and *education*. The development of certain skills and familiarity with specific schemata amounts to a training exercise. He sees this as a more restricted and mundane activity than education, which involves assisting learners in developing a general capacity or set of procedures to cope with a wide range of needs. Widdowson sees ESAP courses as more concerned with training and EGAP courses with education. Dudley-Evans and St. John (1998:42) disagree with Widdowson on this point: while they accept that certain narrow-angle EAP courses focus on specific skills and schemata, and are locally classified as training, most ESAP courses are as much concerned with education and developing learners' capacity as EGAP courses. The difference is that ESAP courses focus on the actual tasks that students have to carry out while EGAP courses select more general contexts.

Hyland (2002) challenges Spack's (1988) view that EAP should focus on the academic writing process and ignore disciplinary differences. He (ibid.) argues that from a position informed by text analysis and social constructionism, we are now in a better position to describe the literacy cultures of different academic majors more precisely and with more

confidence, making subject-specific EAP more effective. Coffin et al. (2003:46), for instance, argue that different kinds of writing assignments can be related to four main groupings of disciplines, and this categorization and the types of texts associated with them are shown in table 2.1.

Sciences	Social sciences	Humanities/arts	Applied fields
Examples Physics, geology, biology, chemistry	Sociology, politics, economics, media studies, psychology	English, history, language, classics, fine arts, religion	Business, music, health and social welfare, engineering
Typical genres Lab reports, project proposals and reports, fieldwork notes, essays, theses	Essays, project reports, fieldwork notes, theses	Essays, projects, critical analysis, translations	Essays, case studies, theses, projects

Table 2.1: *Disciplines and their typical written genres*

The need to inform classroom decisions with knowledge of target language features, tasks and practices of students has led analysts to sharpen concepts and develop research methodologies to understand what is going on in particular courses and disciplines (Hyland 2006:15). Ann Johns, a prominent EAP writer, for instance, urges EAP teachers to use their abilities to explore academic worlds: their language, their values, their genres, and their literacies, remembering at all times that these worlds are complex and evolving, conflicted and messy (Johns 1997:154).

2.4. Evolutionary movements in ESP/EAP

> I shall make the assumption that all forms of human knowledge are capable of being construed as text. Knowledge is prototypically made of language. Once you have language – whether 'you' as species, or 'you' as individual – then you have the power of transforming experience into meaning. But, by the same token as you are enabled to do this, you are also constrained to do it; you have not internalized an experience until you have transformed it into meaning. And once you have done that, it has the potential for being worded – it can now be transformed into text. Since it is the lexicogrammar that has transformed experience into meaning in the first place, this experience already exists as 'virtual' text. But experience comes to be construed in very different ways, as children mature – as they move from home and family, via neighbourhood and peer group, into primary school and then beyond.

> (Halliday 2006:25)

It must be stressed here that ESP cannot be seen as a totally separate enterprise, but rather as embedded in and contributing to many traditions and developments in language teaching and applied linguistics. Hutchinson and Waters (1987:17) use the organic image of a tree, with the roots planted deeply in learning and communication, and rising up through the various divisions and subdivisions of language teaching already outlined. Ways in which this has happened, however, have obviously changed over time. This whole topic is dealt with in considerable depth by Stern who, in his *Fundamental Concepts of Language Teaching* (1983), proposes a very detailed 'conceptual framework', designed as a model that is intended to capture what he sees as the complexity of language teaching. After surveying a number of earlier models, he then sets out his own scheme. Its main components are (a) views of the nature of language, (b) views of the learner and of language learning, (c) views of teaching and the language teacher, and (d) the whole context, which includes the educational setting, the language context, and the language teaching background. The chief characteristics of the model according to McDonough and Shaw (2003:5-6) are:

1. it should be *comprehensive,* covering any type of language teaching operation;

2. all factors under each heading are *interdependent,* so that no 'single factor, for example the teacher, the method, the materials, a new concept …. or a technological device, can by itself offer a general solution to most language learning problems' (Stern 1983:47);

3. it should see language teaching as *multidisciplinary.*

Keeping in mind that the differences between the recent developments and their precedents might be characterized in terms of enrichment, we can see how new trends have incorporated other dimensions regarding the nature of language, the nature of language learning and social requirements, recognizing that successful language use involves many more dimensions and skills previously ignored.

2.4.1. Register analysis

ESP as a recognizable concept can be traced back about forty years or so to its 'early days' in the 1960s, when a reaction against the dominant literary tradition in language teaching gradually set in. Strevens's (1971) landmark paper, was clearly conceived in the spirit of the times, arguing for a more pragmatic view of course design and methodology rooted in learners' own goals and realities.

At first, people tried to establish the syllabus and curriculum of EST through register analysis, that is, according to the features of grammar and vocabulary of the language used in certain specialty. Using what Swales (1988:1) refers to as an approach based on 'lexicostatistics', Dudley-Evans and St. John (1998) clarify this orientation as an assumption that, while the grammar of scientific and technical writing does not differ from that of general English, certain grammatical and lexical forms are used much more frequently (P:21). *A*

course in Basic Scientific English, compiled by Ewer and Latorre (1969), is the typical example of the syllabus on register analysis. It seems that most ESP courses offered in Iranian universities also tend towards this kind of syllabus (Hassaskhah 2005).

Martin (1976, cited in Jordan 1997:152-3) describes the register of academic vocabulary and groups it into three categories:

1. *the research process:* the vocabulary is primarily verbs and nouns and is 'presented in a context which discusses the five steps of research: formulating, investigating, analyzing, drawing conclusions and reporting results'.

2. *the vocabulary of analysis:* it includes high frequency and two-word verbs needed 'in order to present information in an organized sequence', e.g. consists of, group, result from, derive, base on, be noted for. Verbs of analysis are grouped in a number of semantic sets, for example, consist of, be composed of, contain, be made up of.

3. *the vocabulary of evaluation:* it includes adjectives and adverbs that occur in reviews, critiques and some reports, e.g. exhaustive, controversial, coherent, indispensible, comprehensive, distinctive, pervasive, substantive; objective-subjective, implicit-explicit, inductive-deductive, significant-insignificant.

A criticism of register analysis, as Bhatia (1993:6) observes, is that it is purely descriptive and not explanatory, i.e. it tells us the relative frequency of linguistic forms, but not the special functions these forms have in the specific register and what purpose their marked presence or absence may serve. Although a bulk of materials was developed on the basis of the findings of register analysis, they proved inadequate in practice. Therefore, scholars were forced to seek alternative approaches to treating materials in the field of ESP.

2.4.2. Rhetorical and discourse analysis

The deficiencies of lexical and syntactic analysis coincided with the movement towards focus on communication in language teaching. Therefore, ESP, too, was directed to focus on discoursal patterns and communicative features of language. It was realized that neither lexicon nor syntax, though necessary, was sufficient for the establishment of communicative abilities in ESP learners. The leading lights in this movement were Henry Widdowson in Britain and the so-called Washington school of Larry Selinker, Louis Trimble, John Lackstrom and Mary Todd-Trimble in the United States.

Communicative theory has obviously had far-reaching consequences for the whole of language teaching, not only for ESP. At the same time, as Johnson and Johnson (1998:107) observe, there are a number of key areas where ESP took up and developed communicative principles in directions considered to be appropriate to its own terms of reference. Widdowson (1978), for example, referred to the formal, structural properties of language as *usage,* and polarized this with *use,* a self-explanatory term for a view of language that focuses on its communicative and functional purposes in a real-world context. Such a perspective was felt to be particularly important for adult learners who may well have been exposed for several school years to a grammatical syllabus and who would not be helped or motivated by re-exposure to the same kind of material.

More specifically, Widdowson set out a number of significant arguments that eventually led to the publication of the first course book in the *Focus* series, *English in Physical Science* (1978). A further corollary of the communicative approach has been the analysis of language beyond the boundaries of the grammatical sentence in terms of the properties of whole texts, under the headings of *cohesion* of the text and *coherence* of the discourse.

This discoursal view of language, where grammatical description is embedded in a wider context of meaning and use, has been paralleled in the USA in terms of 'rhetorical analysis', particularly, by Trimble (1985) and his colleagues in Washington. Their research has been particularly concerned with the form-function relationship inherent in EST, exploring, for instance, the links between tense choice and argument structure.

As Farhady (2006) observes, rhetoric is rooted in social anthropology and linguistic philosophy. According to the claims made in linguistic philosophy, speech acts are concerned with an act over and beyond the linguistic utterance. An utterance is performed to fulfill what Austin (1962) calls an 'elocutionary act'. Based on such arguments, ESP had to move in the direction of identifying discoursal units, the learning of which would enable ESP students to communicate in authentic social settings. Therefore, rhetorical functional analysis became the most effective source of materials development in ESP. "More successful was *The Nucleus Series,* which originated from teaching material developed at the University of Tabriz in Iran" (Dudley-Evans and St. John 1998:23).

More recently, this orientation to language analysis has been phased into a focus on 'genre', which considers not only texts in themselves, but the sociolinguistic role that texts play in particular environments and whole discourse communities: in other words, their communicative *purpose* as well as their linguistic-communicative properties (Swales, 1990).

2.4.3. Genre analysis and academic texts

According to Dudley-Evans (1987), in order to teach a particular text or write a particular piece in a given specialty field, we have to understand how each type of text, and not the components of the text, differ from other types. In other words, genre analysis focuses on the

text as a representation of communicative event rather than focusing on the discoursal elements only. Swales (1990:58) concludes:

A genre comprises a class of communicative events, the members of which share some set of communicative purposes. These purposes are recognized by the expert members of the parent discourse community, and thereby constitute the rationale for the genre. This rationale shapes the schematic structure of the discourse and influences and constrains choice of content and style.

Swales notes, for example, that there is a regular pattern of 'moves' and 'steps' that appear in a certain order in the majority of introductions investigated. A 'move' is a unit that relates both to the writer's purpose and to the content that s/he wishes to communicate. A 'step' is a lower level text unit than the move that provides a detailed perspective on the options open to the writer in setting out the moves in the introduction. His model (CARS – Create A Research Article) for the article introduction is shown below (figure 2.3).

This model has had a major influence on research and the teaching of writing in EAP. The advantage, as Dudley-Evans and St. John (1998:90) put, is that the moves and steps seem to reflect a reality in text and in the way in which writers approach the task of writing up their research. From a pedagogic point of view it is possible to convert the analysis very readily into teaching material that provides a way into both the organization of writing and the relevant language forms (see, for example, Swales and Feak, 2000). In the area of EOP, Bhatia (1993) has shown that the techniques of genre analysis can be applied to business letters and legal documents.

Move 1	**Establishing a Territory**	
Step 1	Claiming centrality	
	and/or	
Step 2	Making topic generalizations	
	and/or	
Step 3	Reviewing items of previous research	
		Declining rhetorical effort
Move 2	**Establishing a niche**	
Step 1 A	Counter-claiming	
	or	
Step 1 B	Indicating a gap	
	or	
Step 1 C	Question-raising	
	or	
Step 1 D	Continuing a tradition	
		Weakening knowledge claims
Move 3	**Occupying the niche**	
Step 1 A	Outlining purposes	
	or	
Step 1 B	Announcing present research	
Step 2	Announcing principal findings	
Step 3	Indicating research article structure	
		Increasing explicitness

Figure 2.3: A CARS model for article introductions

One of the main advantages of genre analysis, according to Dudley-Evans and St. John (1998: 91-2), is its ability to relate textual findings to features of the discourse community within which the genre is produced.

2.4.3.1. Discourse communities

Learning a discipline implies, among other goals, learning to use language in disciplinary approved ways. It involves learning specialized discourse for reading and writing, for presenting orally, for reasoning and problem solving, and for carrying out practical research activities. The concepts of a discipline, its methods of persuasion, its ways of negotiating interpretations and its practices of constructing

knowledge are all defined through and by language. Learning a discipline thus means learning to communicate as a member of a community. (Hyland 2006:38)

Swales (1990:24-7) lists the following six defining characteristics of a discourse community:

1. A discourse community has a broadly agreed set of common public goals.
2. A discourse community has mechanisms of intercommunication among its members.
3. A discourse community uses its participatory mechanisms primarily to provide information and feedback.
4. A discourse community utilizes and hence possesses one or more genres in the communicative furtherance of its aims.
5. In addition to owning genres, a discourse community has acquired some specific lexis.
6. A discourse community has a threshold level of members with a suitable degree of relevant content and discoursal expertise.

The concept of a discourse community, as Dudley-Evans and St. John (1998:92) observe, is extremely useful, but it can be difficult in practice to produce real and concrete examples of actual discourse communities. But, as Hyland (2006:42) observes, despite difficulties, the construct (community) helps us to see some ways that disciplines influence target texts and practices and draws attention to the fact that the discourses we teach our students are embedded in social and cultural contexts.

2.4.3.2. Multimodal discourse

While genre studies typically privilege language, many analysts claim that there is a 'visual literacy': a grammar inherent in images that we must attend to. Academic texts, particularly in the sciences, have always been multimodal, but textbooks and articles are now far more heavily influenced by graphic design than ever before and the growing challenge to the page by the screen as the dominant medium of communication means that images are more

important in meaning making. This more integrated perspective, which deals with all the means we have of making meanings, is called multimodality (Hyland 2006:52).

So developments in mode and media, as Hyland (2006:53) notes, have produced changes which mean that EAP students have to be taught to 'read' visuals as much as texts. The fact that figures, tables and photographs can occupy up to half a science research article testifies to the significance of visuals in academic genres.

Multimodal discourse has also been reflected in international language tests such as IELTS and TOEFL in which students are required to look at a diagram, table, etc., interpret it and write or speak about it. Or they are required to read or listen to a text and fill in the missing parts in an image, diagram, table etc. These tests, which are mostly intended to evaluate students' proficiency to study in English medium systems, claim that in addition to the four skills, they test academic skills and the ability to read and interpret visual information is an important component of the academic skills.

2.4.3.3. Applications and implications

It may seem that teachers' work loads are already heavy without adding the need to analyse texts as well, but, as Hyland (2006:246) puts, this is not an optional extra removed from the everyday business of 'teaching'. … genre analysis helps reveal the conventional ways that people convey their purpose and how this differs across disciplines.

Hyland (2000), for example, suggests that the structure below is widely used for research article abstracts: 1. Introduction, 2. Purpose, 3. Method, 4. Results, 5. Conclusion. Following this move analysis, one can consider the following features of the texts:

- *Tense*. What tenses tend to predominate in each move? Why writers might favour these choices?

- *Voice*. Is passive or active voice favoured in these texts? What reasons might be given to explain these choices?

- *Verb choice*. Can the verbs in each move be categorized by their main purpose?

- *Hedges*. While writers highlight what is new and interesting, they are also reluctant to overstate their findings and so tone them down with hedges. Can these be identified?

- *Noun groups*. The use of nominal groups allows writers to package complex events or entities as single things so they can be thematized and discussed.

- *Promotional matter*. Introductory moves rarely provide simple background but seek to emphasize the importance, topicality, or relevance of the study to the discipline. In what ways is this done?

Bhatia (1993) suggests some basic steps for conducting genre analysis, summarized below, which provide a useful checklist to ensure that analysis doesn't lose sight of the link between texts and contexts.

1. Select a text of the genre you intend to teach and compare it with other similar texts to ensure that it broadly represents the genre.
2. Place the text in a situational context, i.e. use your background knowledge and text clues to understand where the genre is used, by whom, and why it is written the way it is?
3. Study the institutional context in which the genre is used (visit the site, interview users, look at rule books, manuals, etc.) to better understand the conventions which text users often follow.
4. Select a level of analysis (look at vocabulary, grammar, types of cohesion, move structure, etc.) and analyse the key features.
5. Check your analysis with a specialist informant to confirm your findings and insights.

Regarding multimodal discourse, there are also some implications for material development in general and for methodology and task design in particular. A variety of good tasks can be designed using visuals. They can make the task more meaningful and purposeful.

Multimodal representations, as Hyland (2006:252) observes, are most obvious in academic discourse and in the *sciences*, where visuals do more than merely illustrate or

supplement information, and where learning to read them is a part of learning scientific discourse. Myers (1997) suggests that teachers and students should ask three questions about visuals:

1. *Why is the visual there?* Examine the captions and the in-text reference and ask what they direct us to do with the picture. Is it a gloss, an interpretation or a background statement?

2. *How does the picture refer?* Photographs, cartoons, maps, portraits, diagrams, graphs, etc., work in different ways, and awareness of this can encourage reflection on their assumed naturalness and the ways symbols are created and used in the discipline. There are three ways of referring, with some overlap:

   - *Indexical* references linked directly with the thing referred to, as a fingerprint is an index of a finger.
   - *Iconic* references based on resemblance to thing referred to, such as a photograph or drawings of DNA as a helix.
   - *Symbolic* references based on arbitrary conventions, such as letters used to symbolize elements in the periodic table.

3. *How real is it?* Kress and Van Leeuwen (1996) observe that there is a visual modality, like our use of *might* or *could* or *probably* in language. Thus realistic images, such as the grainy detail of an x-ray or autoradiogram, stake a claim to being statements of evidence and suggest greater certainty than the simplicity of a line diagram.

Kress and Van Leeuwen (1996) encourage their students to consider:

➢ Which aspects of the argument are included in the visual and which omitted and why?

➢ What connections are drawn between the visual and the text?

➢ What is the relationship between the gloss of the visual and the visual itself?

➢ What are the connections between the visuals and their positioning on the page?

2.4.4. Study skills

Whereas earlier register-based approaches tended to deal with text as an amalgam of items of language (grammar, lexis), the 1980s saw increasing attention being given, not only to the text (written or spoken) as a product to be understood, but to the human processor or producer of that text. This has led to a concern with both study skills and language skills. (Johnson and Johnson 1998:108)

The primary concern of any educator should be enhancement of the students' ability to take charge of their own learning. The term study skills and its associated activities, as Johnson and Johnson (1998:309) observe, are most widely applied first in the field of EAP to non-native speakers, and secondly in educational context where the language of study is the students' mother tongue. In both cases the framework is usually that of higher and further education. Richards and Schmidt (2002:521) give the following definition of study skills:

Abilities, techniques and strategies which are used when reading, writing, or listening for study purposes. For example, study skills needed by university students studying from English language textbooks include: adjusting reading speeds according to the type of material being read, using the dictionary, guessing word meanings from context, interpreting graphs, diagrams and symbols, note taking and summarizing.

The basis of the approach is that students need more than linguistic knowledge to be successful in their studies (Hyland, 2006:18).

Waters and Waters (1992) offer a re-orientation in established thinking about the nature and pedagogy of study skills. Claiming that conventional approaches in EAP/EFL (less so in L1 context) often fail because they only try to impart a repertoire of learnable techniques, the authors propose a distinction between study *skills* and study *competence.* The latter perspective, they argue, allows for a non-atomistic, holistic view of studying, based on core

characteristics and abilities typically identified with the 'successful student'. These include being good at critical questioning; a high degree of self-awareness; being able to think clearly and logically; and imposing their own framework on study data (p.263). Their paper puts forward a procedure for using these cognitive and affective features as a basis for study skills materials design.

2.4.5. Disciplinary socializing and academic literacies

> *Understanding the nature of literacy involves knowing how knowledge is represented in different disciplines and contexts, being familiar with the strategies needed for understanding and organizing texts, knowing the social contexts in which texts are produced and read, being acquainted with the community and culture that produce and value certain texts and types of text, and knowing how previous experiences of literacy shape perceptions and expectations as to the nature of written discourse.*
>
> (Long and Richards's preface to Johns 1997:ix)

Despite Hutchinson and Waters's (1987) attempts to emphasize the processes of learning over the distinctive nature of what was to be learnt, it became increasingly clear that the diversity of target tasks and genres which learners were forced to confront was not easily approached exclusively through a learner-centred model. Hyland (2006:19) concludes: Equally important, as our understanding of those target tasks and genres developed, it grew increasingly obvious that they were rather more complex than first thought. Teachers came to see that many communicative activities are specific to particular disciplines, and drew the conclusion that the best way to prepare students for their learning was to provide them with an understanding of the assignments they would encounter in their academic classes, leading to an approach geared more to target genres. Although studies on academic literacy and socialisation suggest

that language proficiency plays a role in academic success, other factors, such as being able to use appropriate literacy forms and conventions, come into play as well (e.g. Braine 2002; Jacoby and Gonzales 1991; Lea and Street 2006; and Leibowitz 2004). This approach draws attention to the homogeneity of disciplinary groups and practices. Each discipline might be seen as an academic tribe (Becher 1989) with its particular norms and ways of doing things which comprise separate cultures. Within each culture students acquire specialized discourse competences that allow them to participate as group members.

Mauranen et al. (2010) report their study based on ELFA (English as a Lingua Franca in Academic Settings) corpus project based at the University of Helsinki. They conclude:

1. Student mobility continues to be on the rise, and whether we are talking about exchange programmes, international degree programmes or even entire departments or faculties adopting English as their medium of instruction, the trend seems to be towards more English in non-English environments.

2. At the level of research, international projects adopt English as their lingua franca even if there are no ENL speaking participants. Under these circumstances, the use of English is likely to escalate, because it has become the language known to most people working in these fields.

3. Conversely, the dominance of the ENL speaker model is likely to diminish, because the determinants of language use lose their connections to any national basis. Instead, the influence of professional and disciplinary communities may well be on the increase. This is good news for the EAP research community: increasingly, there will be more diverse uses of English to investigate.

4. On the applied side, current trends in the development of English would seem to complicate matters. It is no longer sufficient to point to the 'educated native speaker' for a model. The successful use of ELF demands new skills from its speakers, native or non-native, compared to those which traditional language education has prepared people for. ELF research is needed for developing innovative applications.

2.4.6. Corpus analysis

According to Richards and Schmidt (2002:127), corpus linguistics is "an approach to investigating language structure and use through the analysis of large databases of real language examples stored on computer. Issues amenable to corpus linguistics include the meanings of words across registers, the distribution and function of grammatical forms and categories, the investigation of lexico-grammatical associations (associations of specific words with particular grammatical constructions), the study of discourse characteristics, register variation, and (when learner corpora are available) issues in language acquisition and development."

The idea of *frequency* is central to corpus studies as corpora are not concerned with what can occur in a genre or register but with what frequently and typically occurs. In other words, as Hyland (2006:58-9) observes, priority is given to describing the commonest uses of the commonest words on the assumption that if something is observed to happen often enough in the past then it is likely to be significant in the future too.

Nation (2001) holds: 'Corpus research has three essential requirements – a set of good research questions that can be answered by study of a corpus, a corpus to provide a source of

data, and the computer programmes that can facilitate the task of organising the data from the corpus.

In addition to frequency counts, analysts also explore corpora by examining concordances. A concordance brings together all instances of a search word or phrase in the corpus as a list of unconnected lines of text with the node word in the centre together with a sample of its linguistic environment. These lines therefore, as Hyland (2006:61) put, give instances of language *use* when read horizontally and evidence of *system* when read vertically. This makes it possible for the user to see regularities in its use that might otherwise be missed. Armed with this kind of information, EAP students are able to make choices which are better informed, guided by 'expert' practice and disciplinary expectations.

In addition, corpus evidence offers a range of information for EAP teachers and learners. For instance, as Hyland (2006:63-4) holds, collocation patterns can reveal features such as the following:

- The patterns of various forms, e.g. whether first-person pronouns are associated with claims, criticisms or research procedures in academic research papers.
- The differences between the words which students often confuse, e.g. *bored* versus *boring, interested* versus *interesting, possible to* versus *possible that,* etc.
- The most appropriate words to use – e.g. whether to use the preposition *in, that,* or *to* with *interested and interesting.*
- 'Semantic prosody', or the connotative meanings a word acquires because of its regular association with other words, e.g. the word *commit* carries unfavourable implications because of its regular co-occurrence with words such as *crime, murder, mistakes,* etc. Similarly the word *rife* has unfavourable semantic prosody (Partington 1998:67).
- Stable lexical patterning in particular disciplines, particularly nominal groups, e.g. *critical discourse analysis* or *static electric field.*

- The specific meanings that words take on in particular disciplines, e.g. *wall, energy, structure, concentration, body,* etc. in biology.
- How words change their meaning as a result of the surrounding text, e.g. the word *quite* boosts the meaning of non-gradable words such as *interesting, beautiful,* and c*ynical.*

2.4.7. Research on medical academic vocabulary

Wang et al. (2008) have carried out a research to develop a Medical Academic Word List (MAWL) of the most frequently used medical academic vocabulary across different sub-disciplines in medical science. They (ibid.) hope the MAWL established in their study to serve as a guide for medical English instructors in curriculum preparation, especially in designing course-books of medical academic vocabulary, and for medical English learners in setting their vocabulary learning goals of reasonable size during a particular phase of English language learning. 623 word families were ultimately chosen and formed the Medical Academic Word List (see Appendix A). In the MAWL, the most frequently used word was *cell*, which appeared 4421 times and appeared in all the 32 subject areas in the corpus, while the least frequently used one was *static*, which appeared 30 times and appeared in 20 subject areas in the corpus. (For a detailed account of the methodology and data collection procedures refer to Wang et al. 2008).

As Wang et al. (2008) report, only 342 (54.90 %) of the 623 word families in the MAWL overlapped with the 570 word families in the AWL. The marked difference between the MAWL and the AWL argues for itself that different practices and discourses of disciplinary communities require a more restricted discipline-based lexical repertoire, which undermines the usefulness of general academic word lists across different disciplines. Words like *lesion* and *vein*, though they tend to be considered as technical terms by people outside

medical field, are included in the MAWL as medical academic vocabulary because they are general purpose medical words frequently used across different medical subject disciplines. Academic vocabulary or semi-technical vocabulary is a class of words between technical and non-technical words and usually with technical as well as non-technical implications. The word families included in the MAWL are medical academic vocabulary common across various sub-disciplines of medicine but not within one single sub-discipline of medicine.

Regarding the Pedagogical implications of their findings, Wang et al. (2008) hold: 'The MAWL can serve as reference for a Medical English lexical syllabus. As the frequently and widely used medical academic vocabulary in medical RAs, the word families in the MAWL are worth special attention in designing some English for Medical Purposes (EMP) courses. The MAWL can provide some guidelines concerning vocabulary in curriculum preparation, particularly in designing EMP course-books for learning medical academic vocabulary and in selecting relevant teaching/learning materials. The MAWL can help learners/instructors center on essential medical academic words, providing learners with some more specific approach to learning medical academic vocabulary and facilitating instructors' setting of their medical academic vocabulary teaching goals in different stages. Well-timed and repeated exposure to the word families of the MAWL in a variety of contexts may significantly contribute to the acquisition of the deep-going properties of this important set of medical academic words.

2.5. Needs analysis

English for specific purposes focuses on the learner and one of the greatest contributions of teaching English for specific purposes is the emphasis it puts on the thorough analysis of the students' needs when designing the course. This analysis includes an assessment of the current level of knowledge students possess and determining the target situation. The analysis also includes considering the means, students' learning styles, strategies, language processing approaches, social context and educational background. Consequently, in this learner-centred approach, course design and teaching often become negotiated, dynamic processes, since needs, expectations and student resources vary with each group. This indicates that each particular group in the world is unique, in a sense, and requires a particular course which is based on their particular needs, resources available, social context and educational background. As Dudley-Evans (2001:ix) notes, 'EAP often tends to be a practical affair, and these areas are typically understood in terms of local contexts and the needs of particular students.' An English for medical purposes course designed in Italy, for example, can hardly satisfy all the needs of medical students in Iran.

However, this important factor is not often addressed in ESP course design in all academic settings. In some parts of Asia, including Iran, ESP teachers and students are either consumers of the courses designed by other people to address the needs of other students or, in case the teachers design their own courses, this is not based on a thorough analysis of the above mentioned factors. This is a crucial issue that needs to be addressed in our profession.

2.5.1. Needs analysis and its dynamic and evolutionary domain

Needs analysis is one of the cornerstones of ESP and is a delicate and challenging process. This delicacy and challenge lies at the dynamic nature of applied linguistic which has various dimensions. Needs analysis, as a result, needs to account for all the factors that are involved in ESP. Consequently, a confusing plethora of terms exists in defining needs analysis: needs are described as *objective* and *subjective* (Brindley 1989:65); *perceived* and *felt* (Berwick 1989:55), *target situation/goal-oriented* and *learning, process-oriented* and *product-oriented* (Brindley 1989:63); in addition, there are *necessities, wants* and *lacks* (Hutchinson and Waters 1987:55).

According to Dudley-Evans and St. John (1998:123), each of these terms represents a different philosophy or educational value, and merits careful thought. They (ibid.) briefly define these notions: 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. Similarly, product-oriented needs drive from the goal or target situation and process-oriented needs drive from the learning situation.

These pairs can be seen as corresponding to a *target situation analysis* (TSA) and a *learning situation analysis* (LSA); and what learners already know, a *present situation analysis* (PSA), from which we can deduce their lacks. Thus, according to Dudley-Evans and St. John (ibid),

- a TSA includes objective, perceived and product oriented needs;

- an LSA includes subjective, felt and process oriented needs;

- a PSA estimates strength and weaknesses in language, skills, learning experiences.

Figure 2.4 summarizes what needs analysis establishes.

personal
information
about learners

professional
information
about learners

language
information
 about target situations

environmental
situation

how to communicate
in the target
situation

learners' lacks

language
learning
needs

learners' needs
from the course
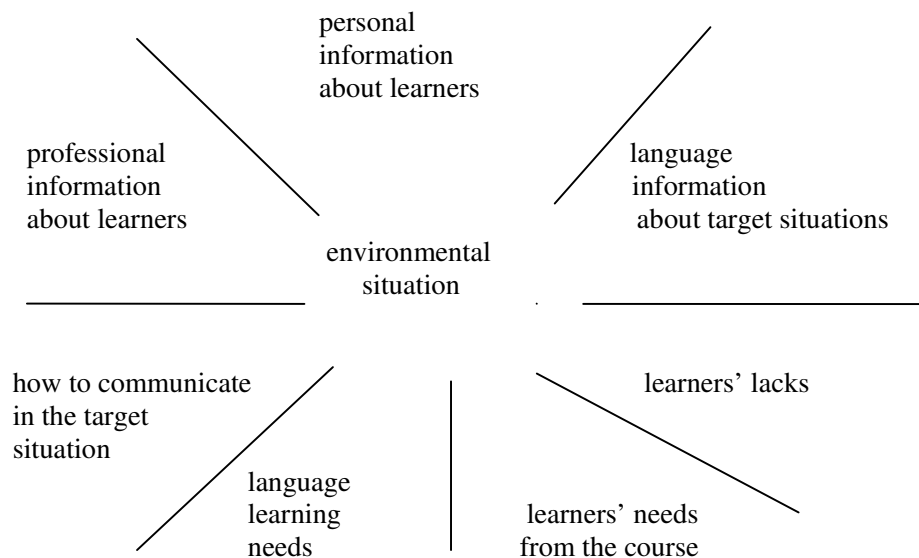
Figure 2.4: *What needs analysis establishes* (Dudley-Evans & St. John 1998:125)

Dudley-Evans and St. John (1998: 121) state that "needs analysis is the process of establishing the *what* and *how* of a course". They (ibid.) stress three aspects of needs analysis (p.126):

- First, needs analysis aims to know learners as people, as language users and as language learners.

- Second, needs analysis study also aims to know how language learning and skills learning can be maximized for a given learner group.

- Third, needs analysis study aims to know the target situations and learning environment so that the data can appropriately be interpreted.

It is obvious that needs analysis is a very crucial first step prior to designing and developing a language course, producing materials for teaching and learning, and developing language test. West (1994) states that language needs analysis is essentially a pragmatic

activity focused on specific situations, although grounded in general theories, such as the nature of language and curriculum. Therefore, in the ESP/EAP context, needs analysis is crucial in determining the aspects of language that are crucial for a particular area of teaching. As Robinson (1991: 8) suggests, needs analysis is not only for determining the "*what and how of a language of teaching*". Robinson (1991) also suggests that needs analysis study should be repeated so that it can be built into the formative process. This would lead to a very informative database of learners, sponsors, subject-specialists and above all ESP practitioners' view and opinions of English language. The main sources for needs analysis are the learners, people working or studying in the field, ex-students and documents relevant to the field, clients, employers, colleagues and ESP research in the field (Dudley-Evans and St. John 1998: 132).

2.5.2. Approaches to needs analysis

Influential models of needs analysis include a sociolinguistic model (Munby 1978), a learning-centred approach (Hutchinson & Waters), and a task-based approach (Long 2005).

2.5.2.1. A sociolinguistic model

Munby (1978) develops an influential sociolinguistic model for defining the content of purpose-specific language programmes. In his work Munby (1978) introduced Communicative Needs Processor (CNP). As Hutchinson and Waters (1987: 54) say: "With the development of the CNP it seemed as if ESP had come of age. The machinery for identifying the needs of any group of learners had been provided: all the course designers had to do was to operate it".

In Munby's CNP, the target needs and target level performance are established by investigating the target situation, and his overall model clearly establishes the place of needs analysis as central to ESP, indeed the necessary starting point in materials or course design (West 1998). In the CNP, account is taken of "the variables that affect communication needs by organizing them as parameters in a dynamic relationship to each other" (Munby 1978: 32).

Munby's overall model is made up of the following elements:

1. **Participants**: information about the identity and language of the learners: age, sex, nationality, present command of target language, other languages known and extent of command;

2. **Communication Needs Processor**: investigates the particular communication needs according to sociocultural and stylistic variables which interact to determine a profile of such needs;

3. **Profile of Needs**: is established through the processing of data in the CNP;

4. **Meaning Processor** "parts of the socioculturally determined profile of communication needs are converted into semantic subcategories of a predominantly pragmatic kind, and marked with attitudinal tone" (Munby 1978: 42);

5. **The Language Skills Selector**: identifies "the specific language skills that are required to realize the events or activities that have been identified in the CNP" (Munby 1978: 40);

6. **The Linguistic Encoder**: considers "the dimension of contextual appropriacy" (Munby 1978: 49), one the encoding stage has been reached;

7. **The Communicative Competence Specification**: indicates the target communicative competence of the participant and is the translated profile of needs.

From the above-mentioned elements of the Munby model, the predominant one or at least the one that has been referred to by other researchers of needs analysis is the Communication Needs Processor (CNP) which is the basis of Munby's approach to needs analysis and establishes the profile of needs through the processing of eight parameters the

processing of which gives us a detailed description of particular communication needs (Munby 1978). The parameters specified by Munby (1987) are:

- **Purposive domain**: this category establishes the type of ESP, and then the purpose which the target language will be used for at the end of the course.
- **Setting**: the physical setting specifying the spatial and temporal aspects of the situation where English will be used, and the psychological setting specifying the different environment in which English will be used.
- **Interaction**: identifies the learner's interlocutors and predicts relationship between them.
- **Instrumentality**: specifies the medium, i.e., whether the language to be used is written, spoken, or both; mode, i.e., whether the language to be used is in the form of monologue, dialogue or any other; and channel of communication, i.e., whether it is face to face, radio, or any other.
- **Dialect**: dialects learners will have to understand or produce in terms of their spatial, temporal, or social aspect.
- **Communicative event**: states what the participants will have to do productively or receptively.
- **Communicative key**: the manner in which the participants will have to do the activities comprising an event, e.g. politely or impolitely.
- **Target level**: level of linguistic proficiency at the end of the ESP course which might be different for different skills.

The aim of Munby's CNP is to find as thoroughly as possible the linguistic form a prospective ESP learner is likely to use in various situations in his target working environment. The outcome of the processing data by means of Munby's model is, as Hutchinson and Waters (1987) say, what the learner needs to know in order to function effectively in the target situation. Most subsequent target needs analysis research was based

on Munby's model for the reason that it offers comprehensive data banks and target performance (Robinson 1991).

West (1994: 9-10) mentions the shortcomings of the Munby's model in terms of four headings:

1. **Complexity**: Munby's attempt to be systematic and comprehensive inevitably made his

   instrument inflexible, complex, and time-consuming.

2. **Learner-centeredness**: Munby claims that his CNP is learner-centered. The starting point may be the learner but the model collects data *about* the learner rather than *from* the learner.

3. **Constraints**: Munby's idea is that constraints should be considered after the needs analysis procedure, while many researchers feel that these practical constraints should be considered at the start of the needs analysis process.

4. **Language**: Munby fails to provide a procedure for converting the learner profile into a language syllabus.

2.5.2.2. A learning-centred approach

Hutchinson & Waters (1987) offer an often-cited learning-centred approach to ESP. They argue that other approaches give too much attention to language needs, whereas more attention should be given to how learners learn. Acknowledging that both target situation needs and learning needs must be taken into account (p.63), they suggest that a learning needs approach is the best route to convey learners from the starting point to the target situation. Learner needs are approached from two directions; target needs and learning needs. Target needs are defined as "what the learner needs to do in the target situation" (Hutchinson & Waters, 1987: 54). They are broken down into three categories: necessities, lacks and wants. Necessities are considered to be "what the learner has to know in order to function effectively

in the target situation" (p. 55). Lacks are defined as the gaps between what the learner knows and the necessities (p. 56). Wants are described as "what the learners think they need". The second focus in this approach is on learning needs, referring to numerous factors, including who the learners are, their socio-cultural background, learning background, age, gender, background knowledge of specialized contents, background knowledge of English, attitudes towards English, attitudes towards cultures of the English speaking world and studying English. Learner needs also involve: Teaching and learning styles with which the learners are familiar; appropriate or ineffective teaching and learning methods; knowledge of specialized contents that teachers should have; suitable instructional materials and study location; time of study and status of ESP courses; expectations about what learners should achieve in the courses; how necessary the courses are for the learners.

Hutchinson & Waters (1987) recommend that needs analysis be checked constantly. They also stress the use of multiple methods of data collection – such as interviews, observation, and informal consultations with sponsors, learners and others involved – to deal with the complexity of target needs.

A target situation analysis framework	A framework for analyzing learning needs
1. Why is the language needed? for study; for work; for training; for a combination of these; for some other purposes, e.g. status, examination, promotion.	**1. Why** are the learners taking the course? compulsory or optional; apparent need or not; Are status, money, promotion involved? What do learners think they will achieve? What is their attitude towards the ESP course? Do they want to improve their English or do they resent the time they have to spend on it?

2. How will the language be used? Medium: speaking, writing, reading etc.; Channel: e.g. telephone, face to face; Types of text or discourse: e.g. academic texts, lectures, informal conversations, technical manuals, catalogues.	**2. How** do the learners learn? What is their learning background? What is their concept of teaching and learning? What methodology will appeal to them? What sort of techniques are likely to bore/alienate them?
3. What will the content areas be? Subjects: e.g. medicine, biology, architecture, shipping, commerce, engineering; Level: e.g. technician, postgraduate, secondary school.	**3. What** resources are available? Number and professional competence of teachers; Attitude of teachers to ESP; Teachers' knowledge and attitude to the subject content; Materials; Aids; Opportunities for out of class activities.
4. Who will the learner use the language with? Native speakers or non-native; Level of the knowledge of receiver: e.g. expert, layman, student; Relationship: e.g. colleague, teacher, customer, superior, subordinate.	**4. Who** are the learners? Age/sex/nationality; What do they know already about English? What subject knowledge do they have? What are their interests? What is their socio-cultural background? What teaching styles are they used to? What is their attitude to English or to the cultures of the English-speaking world?
5. Where will the language be used? Physical setting: e.g. office, lecture theatre, workshop; Human context: e.g. alone, meetings, demonstrations; Linguistic context: e.g. in own country, abroad.	**5. Where** will the ESP course take place? Are the surroundings pleasant, dull, noisy, cold ,etc?
6. When will the language be used? Concurrently with the ESP course or subsequently; Frequently, seldom, in small amounts, in large chunks.	**6. When** will the ESP course take place? Time of day; every day/once a week; full-time/part-time; concurrent with need or pre-need.

***Table 2.2** A comparison of target situation needs and learning needs* (Hutchinson & Waters 1987: 59-63)

2.5.2.3. A task-based approach

Long (2005) recommends taking a task-based approach to needs analysis as well as with teaching and learning based on the argument that structures or other linguistic elements (notions, functions, lexical items etc.) should not be a focal point of teaching and learning:

1. "Learners are far more active and cognitive-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" (p. 3). In this approach, tasks are the units of analysis and samples of the discourse typically involved in performance of target tasks are collected.

2. Long (ibid) observes, "task-based analyses reveal more than text-based analyses about the dynamic qualities of target discourse. Traditional linguistic, or *text*-based, programs reflect a static, product orientation. Texts, after all, whether simplified or genuine, are the *result* of people's attempts to communicate with one another. In the broadest sense, they are the means by which actors no longer present once tried to accomplish communicative tasks. It was the tasks that motivated the texts, not the other way around" (p. 23).

3. "Since there is some reason to believe that, with few exceptions, domain experts can provide valid information about the work they do in terms of tasks, but not in terms of language, about which they typically know very little, conceptualizing needs that way helps circumvent two notorious bottlenecks in program design (see Hutchinson & Waters 1987; Selinker 1979, cited in Long, 2005:23), the domain

expert's usual lack of linguistic knowledge and the applied linguist's usual lack of content knowledge."

4. "The results of task-based needs analysis readily lend themselves as input for the design of a variety of analytic, task-based and/ or (a small minority of) content-based second and foreign language courses, whose delivery can be harmonized with what language acquisition research has revealed about universal L2 developmental processes in and out of classrooms" (p.23).

Once target tasks for a particular group of learners have been identified, domain experts (not necessarily the learners, unless they have expertise) can easily and reliably supply information which will later be analyzed by applied linguists, materials writers, teachers and learners (Jasso-Aguilar 2005:131). Another, and by no means less important, advantage of tasks is their role in preparing students as agents of social change:

> *Steps are taken, both in pedagogic task design and in the area of methodology, to make learners aware of their potential as social actors, not merely passive observers, in determining task outcomes, and when necessary, in redefining tasks.*
> (Long, to appear, cited in Jasso-Aguilar 2005:131)

2.5.3. Considerations and issues in needs analysis

Realization of a successful needs analysis for designing an ESP course requires a complex and elaborate scrutiny of the various factors that can be incorporated into the task of course design and material development. Dudley-Evans and St. John (1998:162) illustrate the complexity of the task of course design:

> *Coming up with a course design is a dynamic mix of juggling and doing jigsaw puzzles. Juggling because there are a lot of different aspects to keep in mind and keep moving between – the balls a juggler has to keep in the air. Jigsaw puzzles*

because we are taking different pieces and shifting them around until they fit to make a satisfactory picture.

The starting point is to pose some fundamental questions (Richterich 1983, cited in Jordan 1997:22) which can help us to see the appropriate type of analysis and the data needed:

1. *Why* is the analysis being undertaken? (to determine the type of syllabus and content, materials, teaching/learning; for placement on an appropriate course; to inform EAP teachers through articles in journals …)

2. *Whose* needs are to be analysed? (the student's; the sponsor's institution or country; the specialist department …)

3. *Who* performs the analysis? *Who* decides what the language needs are? (sponsor; teacher; student; researcher/consultant …)

4. *What* is to be analysed? (target situation; present situation; deficiencies; strategies; means; constraints; necessities; lacks; wants …)

5. *How* is the analysis to be conducted? (tests; questionnaires; interviews; documentation ..)

6. *When* is the analysis to be undertaken? (before the EAP course; at the start of the course; during the course; at the end of the course …)

7. *Where* is the EAP course to be held? (in the target country, e.g. UK; in the student's own country; in a third country …)

There are many factors to consider and a variety of situations in which courses are designed. To carry out a successful needs analysis the researcher needs to:

- establish what needs analysis is supposed to determine
- match needs analysis to means
- match needs analysis to situations

- integrate the methodologies of other disciplines
- establish how the data is to be collected

Figure 2.5 summarizes aspects of needs analysis in this study
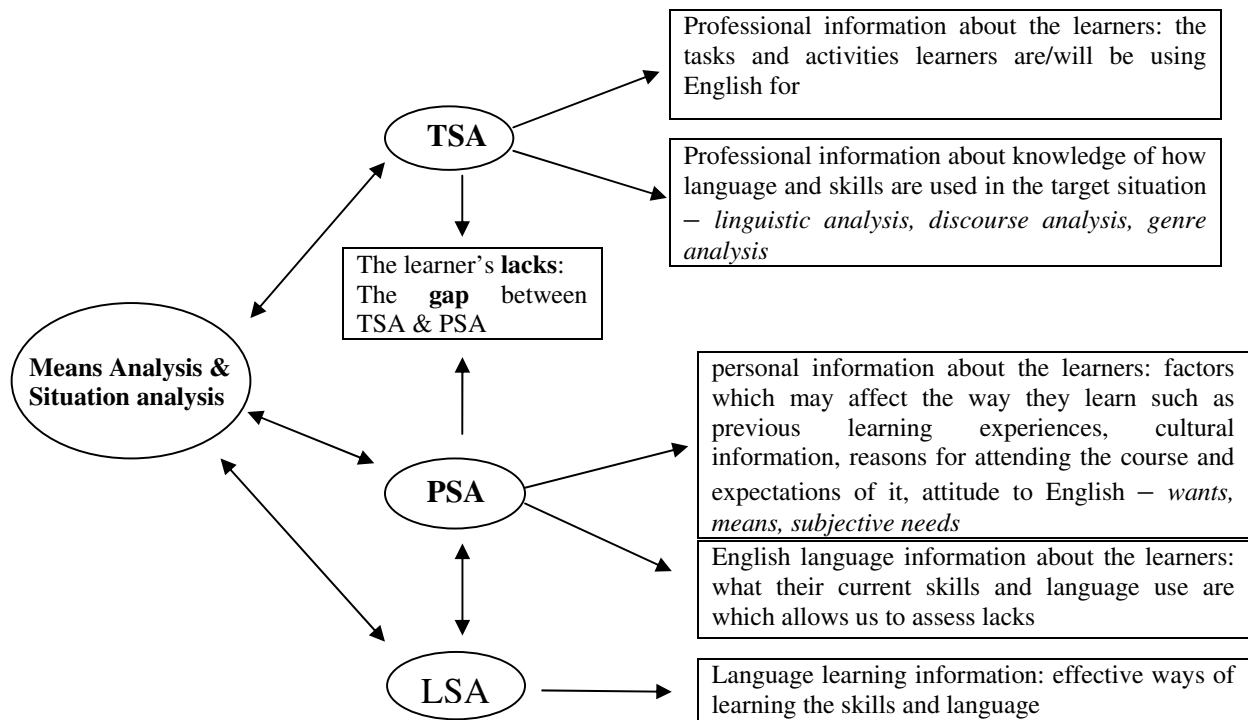
Figure 2.5: Aspects of needs analysis in this study

2.5.3.1. Establish what needs analysis is supposed to determine

Target Situation Analysis

Target Situation Analysis (TSA) is a form of needs analysis, which focuses on identifying the learners' language requirements in the occupational or academic situation they are being prepared for (West, 1994). Robinson (1991: 8) argues that a needs analysis, which focuses on students' needs at the end of a language course, can be called a TSA (Target Situation Analysis). Munby (1978) formulates the best-known framework of TSA type of needs analysis. He presents a communicative needs processor, comprising a set of parameters within which information on

the students' target situation can be plotted. According to Dudley-Evans and St. John (1998:125) TSA includes:

1. professional information about the tasks and activities the learners are/will be using English for in their discourse community,

2. professional information about knowledge of how language and skills are used in the target situation ‒ *linguistic analysis, discourse analysis, genre analysis*

A TSA includes objective, perceived and product oriented needs. Various sources such as published and unpublished literature, learners, teachers and applied linguists, domain experts, triangulated sources can feed TSA. In order to avoid starting from scratch we can also refer to what others have done in this regard.

Present Situation Analysis

According to Robinson (1991: 8), "PSA seeks to establish what the students are like at the start of their language course, investigating their strengths and weaknesses".

According to Dudley-Evans and St. John (1998:124-5) a PSA estimates strength and weaknesses in language, skills, learning experiences and includes:

1. 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,*

2. English language information about the learners: what their current skills and language use are which allows us to assess lacks

Learning Situation Analysis

This refers to language learning information – effective ways of learning the skills and language and includes subjective, felt and process-oriented needs.

Deficiency Analysis

This refers to the gap between TSA and PSA. Whether or not the learners need instruction in doing a particular task will depend on how well they can do it already. In other words, as Hutchinson and Waters (1987:56) put, "the target proficiency needs to be matched against the existing proficiency of the learners. The gap between the two can be referred to as learner's lacks".

2.5.3.2. Match needs analysis to means

To establish a workable course design, means analysis is suggested (Holliday and Cooke 1982 cited in Dudley-Evans and St. John 1998:124) as an adjunct to needs analysis. Dudley-Evans and St. John (1998:123) consider the classroom culture and the management infrastructure and culture. They (ibid.) believe that these are viewed not as negative constraints but as relevant features. "The negative-constraints view corresponds to: 'ideally we would do …. but it is not possible so we will compromise and do ….' The relevant-features perspective is a positive approach which says: 'what will be best in this particular and given situation?.' … Means analysis is an acknowledgement that what works well in one situation may not work in another." While medical students around the world may share some similar language needs, how they learn the language, the condition in which they are learning and where and how they apply the language are not the same. So the needs, and how they are prioritised, ordered and then met will be different. Below some means factors are analyzed to get a clear picture.

Refer to chapter one for a discussion of 1. Management and administration, 2. Teachers, 3. Time availability and the length of the course, as some examples of considerations of means analysis.

2.5.3.3. Match needs analysis to the situation

The goal of needs analysis, as Richards (2001:90) puts, is to collect information that can be used to develop a profile of the language needs of a group of learners in order to be able to make decisions about the goals and content of a language course. However, other factors apart from learner needs are relevant to the design and implementation of successful language programs. Each context for a curriculum change or innovation thus contains factors that can potentially facilitate the change or hinder its successful implementation (Markee 1997, cited in Richards 2001:90). It is important, therefore, to identify what these factors are and what their potential effects might be when planning a curriculum change. This is the focus of situation analysis. Situation analysis, as Richards (2001:91) puts, is an analysis of factors in the context of a planned or present curriculum project that is made in order to assess their potential impact on the project. … Situation analysis complements the information gathered during needs analysis.

There are other considerations that need to be taken into account when we approach and conduct needs analysis. Figure 2.6 summarizes these considerations. There are many important factors that, if not taken into account, our course design and material development cannot meet students and professionals' needs at a certain level of education or profession.

```
 ┌─────────────────┐        ┌──────────────────┐
 │ A. when the     │───────▶│ 1. pre-study     │
 │ course          │───────▶│ 2. in-study      │
 │ takes place     │───────▶│ 3. post-study    │
 └─────────────────┘        └──────────────────┘
```

1. An English speaking country, such as UK or USA

2. An ESL situation in which English is the official language of education

3. A situation in which certain subjects, such as medicine, engineering or science, are officially taught in English, while for other subjects and at other levels of education the national language is used.

4. A situation where all subject courses are taught in the national language, but English may be important for ancillary reasons.

B. The type of situation

Long, extensive, repeated

Long, extensive, one-off

Short, intensive, repeated

Short, intensive, one-off

C. The length and type of the course

Figure 2.6: Matching needs analysis to situation

The factors illustrated in figure 2.7 are discussed below:

A. When the course takes place (pre-study, in-study, post-study) and implications

The division of courses according to when they take place has three implications. First, this division will affect the degree of specificity that is appropriate to the course (Dudley-Evans and St. John 1998:6). As we move from pre-study towards post-study the degree of specificity increases. Second, the timing of the English course can affect the students' motivation and

performance. Research suggests that more specific and subject-related courses have been more successful in motivating students and really meeting their needs. Introducing first year students to the basic underlying content schemata of the subject and formal schemata (Carrell 1983) of the writing tasks expected of students is affective in both motivating students and bringing about improvement in their performance in subject courses (Love 1993, cited in Dudley-Evans and St. John 1998:37). Third, Crofts (1977 cited in Swales 1980:67) suggests that EAP material should concentrate on material that is parallel to the main subject course, but is not actually part of it; topics that could have been included in the main course, but were not. Consulting the head of the department, the subject matter teacher about the subject courses that run with English course simultaneously, can help language teachers cooperate, collaborate and team-teach with subject teachers.

In most ESL/ EFL contexts, including Iran, English is often taught in the first year of the academic course. Dudley-Evans and St. John (1998:40) believe there is a case for delayed or additional teaching of English in the final years. They (ibid.) also refer to delayed needs as those that arise either in the final year (e.g. project work) or to communication needs in the future. While teachers on training courses readily accept this idea, very few (if any) reports exist in the EAP literature of experiments on the timing of the English course (ibid.). Swales(1984, cited in Dudley-Evans and St. John 1998:41) points to a loss of confidence in English Language Centers that concentrate exclusively on first year support work and suggests the expansion of their role to the teaching of 'research English' to postgraduates and young academic staff.

In India, for example, the immediate need for knowledge of academic and specific English requires giving more priority to pre-study and in-study EAP/ESP courses compared to

Iran. In both countries there is a case for delayed or additional EAP/ESP courses in the final years. In the final years, students more readily appreciate the value of academic skills such as project work, paper writing and presentation, case report, etc. thanks to their good command of the conceptual issues in their respective fields and the requirements of their profession. This, in turn, helps them benefit more from the delayed instruction.

B. The type of situation and implications

Another factor that needs to be taken into consideration is the type of situation. Students' cultural background, L2 proficiency, communicative abilities vary in the four situations mentioned in figure 2.6. "Clearly, students in different countries may have different difficulties and needs, just as students studying different subjects may" (Jordan, 1997:43).

Regarding the four contexts mentioned above, item 4 applies to Iran. In this context, lower level of motivation and exposure to English hinders students' L2 proficiency. This indicates that, in EFL context, the ESP/EAP course designers and material developers' task becomes very complicated and demanding. Along with discourse and genre specific factors, students' L2 proficiency needs to be addressed in ESP course books. Tertiary students in EFL context (e.g. Iran) are not equipped with the required linguistic and communicative abilities to embark upon specialized English. As Dudley-Evans and St. John (1998:171) put: "In some situations, where English is a foreign not a second language, the ESP classroom may be almost the only source of English. Materials then play a crucial role in exposing learners to the language, which implies that the materials need to present real language, as it is used, and the full range that learners require".

C. The length and type of the course

Time availability and the length of the course determine whether the course is going to be intensive or extensive. The content, tasks and activities, scope and sequence of a long, extensive and repeated course will be different from that of a short, intensive and one-off course.

If more importance and time is given to EAP/ESP education, course designers will have much better perspectives on the content specification, sequencing, and breadth and depth of coverage of items in the course. This, also, allows course designers much room for maneuver.

2.5.3.4. Establish how the data is to be collected

Sources of information for needs analysis according to Long (2005: 25) are:

1. Published and unpublished literature
2. Learners
3. Teachers and applied linguists
4. Domain experts
5. Triangulated sources

Chapter three (methodology) includes a discussion of the above mentioned sources of information.

2.6. Key issues in developing and implementing an EAP course

While important, needs analysis is just a means to an end: providing the basis for a course informed by an understanding of the learners, of the teaching situation and of target texts and behaviours. From rights and needs assessments a systematic course plan has to be developed by selecting and sequencing the content and tasks that will lead to desired learning outcomes

(Hyland 2006:81). This section introduces some of the key issues in developing and implementing an EAP course.

2.6.1. Planning goals and learning outcomes

Early planners of English language courses saw the purpose of language teaching as self-evident. It was sufficient to state that the goal of a course was to teach English. The ESP movement argued that this approach was inadequate and that in order to teach English it was necessary to find answers to much more specific questions: What kind of English? At what level of proficiency? And for what purposes?

Setting goals and objectives, according to Graves (1996: 17), provides a sense of direction and a coherent framework for the teacher in planning her course. … Clear goals and objectives give the teacher a basis for determining which content and activities are appropriate for her course. They also provide a framework for evaluation of the effectiveness or worth of an activity.

The nature of aims and objectives, however, is not necessarily straightforward because they refer to knowledge, skills, and values that educational planners *believe* learners need to develop.

2.6.1.1. Stating curriculum outcomes: aims

In curriculum discussions, the terms *goal* and *aim* are used interchangeably to refer to a description of the general purposes of a curriculum and *objectives* to refer to a more specific and concrete description of purposes. According to Richards (2001:120), an aim refers to a statement of a general change that a program seeks to bring about in learners. Regarding EAP courses, Hyland (2006:314) refers to goals or aims as general statements about what an EAP

course hopes to accomplish; the global target outcomes around which the course is organized.

The purposes of aim statements, according to Richards (2001:120), are:

- to provide a clear definition of a program
- to provide guidelines for teachers, learners and material writers
- to help provide a focus for instruction
- to describe important and realizable changes in learning

Stern (1992, cited in Graves 1996:17) proposes four types of goals for language learners:

- **Proficiency goals:** include general competency, mastery of the four skills, or mastery of specific language behaviours.
- **Cognitive goals:** include mastery of linguistic knowledge and mastery of cultural knowledge.
- **Affective goals:** include achieving positive attitudes and feelings about the target language, achieving confidence as a user of the language, and achieving confidence in oneself as a learner.
- **Transfer goals:** involve learning how to learn so that one can call upon learning skills gained in one situation to meet future learning challenges.

Thus, as Graves (1996:17) puts, goals may address not only the attainment of knowledge and skills but also the development of attitude and awareness. Goals should also be realizable.

2.6.1.2. Stating curriculum outcomes: objectives

Aims can be interpreted in many different ways due to their general nature. In order to give a more precise focus to program goals, aims are often accompanied by statements of more specific purposes. These are known as *objectives*. They are also sometimes referred to as *instructional objectives* or *teaching objectives* (Richards 2001:122). As Graves (1996:17) observes, the goals of a course represent the destination; the objectives, the various points that chart the course toward the destination. To arrive at the destination, one must pass each of

these points. Nunan (1988b:158) refers to objectives as a statement describing what learners will be able to do as a result of instruction. He (ibid.) observes that formal objectives are meant to have three parts: an *activity* (what learners will do); *conditions* (under what circumstances), and *standards* (how well they will perform).

2.6.1.3. Non-language outcomes and process objectives

As Nunan (1988b:70-1) observes, process objectives differ from product objectives in that they describe, not what learners will do as a result of instruction, but the experiences that the learner will undergo in the classroom. Richards (2001:133) maintains, if the curriculum seeks to reflect values related to learner centeredness, social reconstructionism, or cultural pluralism, outcomes related to these values will also need to be included. Because such outcomes go beyond the content of a linguistically oriented syllabus, they are sometimes referred to as *non-language outcomes*. Those that describe learning experiences rather than learning outcomes are also known as *process objectives.* For a comprehensive account of non-language outcomes and practical examples refer to Jackson (1993).

Nunan (1998b:71) concludes: "The specifications of process and product objectives are not necessarily mutually exclusive. One type specifies the means, the other the ends. It could be argued that any comprehensive syllabus needs to specify both process and product objectives."

2.6.1.4. Objectives in Teaching ESP

Basturkmen (2006:133-146) describes the five broad objectives in ESP teaching without referring to the distinction between *goals* and *objectives*:

- To reveal subject-specific language use

- To develop target performance competencies
- To teach underlying knowledge
- To develop strategic competence
- To foster critical awareness

ESP courses are often based on different combinations of objectives, with some courses giving more emphasis to some objectives than others. This may reflect the outlook of teachers, course designers, and institutions involved (ibid).

2.6.2. Choosing course content

Once language teaching was heavily influenced by a structural view of language. This influence resulted in a "one size fits all" approach to content and methods, meaning that, for example, an EFL teacher could use the same drills or pattern practice for factory workers, college students, and housewives. There was not much question about content: it was grammatical structures and vocabulary.

Much has changed in recent years in the fields of applied linguistics and language acquisition and in approaches to language teaching. The proficiency movement, the concept and various models of communicative competence, the advent of ESP, the proliferation of methods of language teaching, and the diversification of the population of English learners have all provided the teacher with many more options to consider in deciding what will be the backbone of his course (Hutchinson and Waters 1987; Ommagio Hadley1993; Richards 1990; Yalden 1987).

Decisions about the course content reflect the planners' assumptions about the nature of language, language use, and language learning, what the most essential elements or units of language are, and how these can be organized as an efficient basis for second language

learning (Richards 2001:148). The choice of a particular approach to content selection will depend on subject-matter knowledge, the learners' proficiency level, current views on second language learning and teaching, conventional wisdom, and convenience. Information gathered during needs analysis contributes to the planning of course content, as do additional ideas from the following sources (Richards 2001: 148):

- available literature on the topic
- published materials on the topic
- review of similar courses offered elsewhere
- review of tests or exams in the area
- analysis of students' problems
- consultation with teachers familiar with the topic
- consultation with the specialists in the area

Keeping in mind that the differences between the recent developments and their precedents might be characterized in terms of enrichment, we can see how new trends have incorporated other dimensions regarding the nature of language, the nature of language learning and social requirements, recognizing that successful language use involves many more dimensions and skills previously ignored. In this line, Graves (1996:19-25) considers the evolutionary movements in content specification and presents her completed grid as shown in figure 2.7. As we move from the bottom of the table to the top, we can see the enrichment of our view and incorporation of new dimensions, moving from structural syllabuses towards a multilayered syllabus.

Participatory processes Examples: problem posing, experiential learning techniques		Learning strategies Examples: self-monitoring, problem identification, note taking		Content Examples: academic subjects, technical subjects
Culture Examples: culture awareness, culture behavior, culture knowledge		Tasks and activities Examples: information gap activities, projects, skills or topic-oriented tasks such as giving a speech or making a presentation		Competencies Examples: applying for a job, renting an apartment
Listening skills Examples: listening for gist, listening for specific information, inferring topic, choosing appropriate response	Speaking skills Examples: turn-taking, compensating for misunderstandings, using cohesive devices	Reading skills Examples: scanning for information, skimming for gist, understanding rhetorical devices		Writing skills Examples: using appropriate rhetorical style, using cohesive devices, structuring paragraphs
Functions Examples: apologizing, disagreeing, persuading		Notions and topics Examples: item, quantity, health, personal identification		Communicative situations Examples: ordering in a restaurant, buying stamps at the post office
Grammar Examples: structures (tense, pronouns), patterns (questions)		Pronunciation Examples: segmentals (phonemes, syllables), suprasegmentals (stress, rhythm, intonation)		Vocabulary Examples: word formation (suffixes, prefixes), collocation, lexical sets

Figure 2.7: The completed syllabus grid (Graves 1996:25)

Teaching involves making choices. It is not possible to teach a syllabus that explicitly encompasses all the areas mentioned here so teachers must decide which categories have priority. The categories also overlap. For example, pronunciation is an important part of speaking skill and learning strategies can be linked to specific skills.

In looking at starting points in syllabus design, Nunan (1988b:26) points out three questions in relation to:

1. a linguistic perspective: What linguistic elements should be taught?

2. a learner perspective: What does the learner want to do with the language?

3. a learning perspective: What activities will stimulate or promote language acquisition?

These perspectives are not mutually exclusive. Rather, they represent areas of relative emphasis, and a syllabus designer will usually incorporate insights from all three perspectives (ibid.).

Brindley (cited in Nunan 1987) has suggested that learner, task and text factors will interact to determine task difficulty. The following is only a brief list of the learner, task and text factors that need to be considered in grading objectives. For detailed explanations refer to Nunan (1988a:68-74).

1. **Learner factors**: *(confidence, motivation, prior learning experience, learning pace, observed ability in language skills, cultural knowledge/awareness, linguistic knowledge)*
2. **Task factors:** *(relevance, complexity, amount of context provided prior to text, processibility of language of the task, amount of help available to the learner, degree of grammatical accuracy/contextual accuracy, time available)*
3. **Text factors:** *(size and density of text, presentational format of text, contextual clues, content of text)*

Designing an EAP syllabus includes determining the content, tasks and assignments which will meet the objectives established for the course. As Hyland (2006:286) notes, "Ideally this will include a balance of skills and text knowledge and a variety of topics, task types, genre and input, with discussions, talk and data gathering as input." Depending on the orientation and length of the course, it is good practice to make provision for five main kinds of knowledge and skills (Hyland 2003):

- *Genre:* ensuring relevant genres are included and deciding how these will be introduced.
- *Context:* familiarizing learners with target contexts and the roles and relationships they imply.

- *System:* ensuring that students will acquire the elements of the language system they need to understand target genres.
- *Content:* selecting and sequencing the content domains students will learn 'through'.
- *Process:* making provision for students to develop their writing and speaking skills with different types of practice.

In choosing a particular syllabus framework for a course, planners are influenced by the following factors (Richards 2001:152):

- *knowledge and beliefs about the subject area:* a syllabus reflects ideas and beliefs about the nature of speaking, reading, writing, or listening
- *research and theory:* research on language use and learning as well as applied linguistics theory sometimes leads to proposals in favor of particular syllabus types
- *common practice:* the language teaching profession has built up considerable practical experience in developing language programs and this often serves as the basis for different syllabus types
- *trends:* approaches to syllabus design come and go and reflect national or international trends

Referring to the broad distinction in the literature between *synthetic* and *analytic syllabuses* (White 1988; Wilkins 1976), Hyland (2006:83) observes: "These types of syllabus constitute two ends of a continuum rather than opposing poles of a dichotomy, but while EAP courses may employ elements of both, most tend towards the analytic end of the cline. This is because they give emphasis to meaning and communication as the learner is exposed to relevant authentic target language situations and texts". Both task-based and process syllabuses present target language samples as whole chunks and encourage learners to focus on negotiating meaning, with the learner left to acquire the grammatical forms at his or her individual pace (Ellis 2003). Students, in other words, are primarily 'users' rather than 'learners' of the language.

Hyland (2006:84) also points out: "Research is unable to confirm the direct effect of any syllabus on language learning but analytic syllabuses are more likely to offer a bridge from *declarative* knowledge, or what students know, to *procedural* knowledge, or what they can do with this knowledge. But while research into tasks and meaning negotiation continue to inform syllabus design, EAP practitioners have also continued to emphasize what is to be learned, particularly through *text-based* and *content-based* syllabuses".

2.7. Evaluating textbooks

With such an array of commercial textbooks and other kinds of instructional materials to choose from, teachers and others responsible for choosing materials need to make informed judgments about textbooks and teaching materials. Evaluation, however, can only be done by considering something in relation to its purpose. Before one can evaluate a textbook, therefore, information is needed on the following issues (Richards 2001:256):

1. *The role of textbook in the program*
2. *The teachers in the program*
3. *The learners in the program*

Cunningsworth (1995) presents a checklist for textbook evaluation and selection organized under the following categories: 1. aims and approaches, 2. design and organization, 3. language content, 4. skills, 5. topic, 6. methodology, 7. teachers' books, 8. practical considerations.

The following is a checklist for ESP materials (Cunningsworth 1995:135):

➢ Is the material based on a careful analysis of learner needs?
➢ Are objectives specified? – in content terms, – in performance terms?
➢ Is the content appropriate to learners' needs? Does it have credibility (face validity)?

➢ Is there a body of 'core' specialist language related to the subject area?

➢ Are learners equipped with skills and strategies which will allow them to operate effectively in English in the professional /occupational situation?

➢ Is there a balance between subject-specific language items (grammar, vocabulary, discourse structure) and operational skills and strategies in language use?

➢ Does the material consider the relationship between teachers and students? If so, is a collaborative approach encouraged?

➢ Is the material sufficiently flexible to meet the constraints often found in ESP work, e.g. by having a modular structure of non-sequential units?

➢ Can the material be used for individual study? If so, are learners given guidance on how to use the material in this way?

➢ To what extent do the learning activities mirror real-life situations, e.g. through task-based and skill-based activities?

➢ Do learning activities have outcomes or products which will help learners to evaluate their performance?

Hyland (2006:299) suggests: "Before examining any textbook or other published materials, it is helpful to consider what purpose you want the book for and how you intend to use it in your particular context. This will involve considering the type of book needed, its orientation, role, proficiency level and suitability for teachers and the institution." It is useful to address these issues using a set of criteria for evaluating an EAP textbook. The following items may be considered (adopted from Hyland 2006:300):

➢ How far the materials relate to the course goals and students.
➢ The degree of disciplinary and cultural appropriacy.
➢ The design, layout and visual appeal.
➢ The organization, sequencing and progression of exercises.
➢ The extent of scaffolding offered and degree of recycling of skills and content provided.
➢ The academic content.

➢ The methodology.

2.8. Methodological approaches and issues in EAP course design

> *"the traditional distinction between syllabus design and methodology becomes difficult to sustain if it is accepted that syllabus design should include the specification of learning tasks and activities."* (Nunan 1988b:viii).

Methodology (***in language teaching***), according to Richards and Schmidt (2002: 330), is the study of the practices and procedures used in teaching, and the principles and beliefs that underlie them. Methodology includes:

- study of the nature of language skills (e.g. reading, writing, speaking, listening) and procedures for teaching them
- study of the preparation of lesson plans, materials, and textbooks for teaching language skills
- the evaluation and comparison of language teaching method (e.g. the audiolingual method), etc.

One of the functions of coursebooks is to present the language in such a way that it is learned as effectively and quickly as possible. This implies that the coursebook writers have a view on how language is learned and how it is best taught. As Cunningsworth (1995:97) observes: "Although the coursebook may not seek to impose a rigid methodology on learners and teachers, nevertheless the way it organizes its material and the kind of activities it promotes can have a profound influence on what happens in the classroom." How coursebooks see the learning process, how they view the needs and roles of learners and how they can help learners to learn are some methodological issues that can affect the way EAP courses are developed. As Hyland (2006:89) highlights, "methods and materials are the interface between teaching and learning, the points at which needs, objectives, and syllabuses are made tangible for both teachers and students. Both have received considerable attention in

the ELT and EAP literature, often separately and with methods taking precedence, although the kinds of materials a teacher selects, as much as what he or she does with them, depend on the methodologies adopted."

Dudley-Evans and St. John (1998:187) observe: "ESP teaching can be very different to EFL teaching and … there is a distinguishable ESP methodology. This arises mainly from two factors associated with the learners:

- the specialist knowledge that they bring – both conscious and latent; and

- the cognitive and learning processes that they bring with them from their experience of learning and working within their specialist field."

One of the major corollaries of these two factors, as Dudley-Evans and St. John (ibid.) point out, concerns the kind of activities through which learning takes place: "in addition to language learning activities, the ESP classroom uses tasks and activities that reflect the learners' specialist world."

In EAP classrooms students bring both specialized knowledge and learning processes from their disciplines to their EAP classes. The teacher, as Hyland (2006:89) observes, can seek to harness and build on these to develop learners' discourse understandings in various ways, drawing on concepts such as *consciousness raising, scaffolding, collaboration, socioliteracy* and *concordancing*.

2.8.1. Consciousness raising and socioliteracy

EAP courses always involve attending to the texts learners will most need to use beyond the classroom. This necessarily implies a central role for genre in any methodology. Hyland (2006:89-90) notes, making texts and contexts a focus for analysis allows teachers to raise

students' awareness of the interdependence of disciplinary valued genres, the resources used to create meaning in context and how powerful genres can be negotiated. One way of doing this is to ask students, often in small groups, to analyse, compare and manipulate representative samples of the target discourse in a process known as *rhetorical consciousness raising.* Consciousness raising is a 'top down' approach to understanding language and encourages us to see grammatical features as "the on-line processing component of discourse and not the set of syntactic building blocks with which discourse is constructed" (Rutherford 1987:104).

Hyland (2006:90) suggests the following tasks which involve comparisons and attention to language use:

- ➢ Compare spoken and written modes, such as a lecture and textbook, to raise awareness of the ways in which these differ in response to audiences and purposes.
- ➢ List the ways that reading and listening to monologue are similar and different.
- ➢ Investigate variability in academic writing by conducting mini-analyses of a feature in a text in their own discipline and then comparing the results with those of students from other fields.
- ➢ Explore the extent to which the frequency and use of a feature can be transferred across the genres students need to write or participate in.
- ➢ Reflect on how far features correspond with their use in students' first language and on their attitudes to the expectations of academic style in relation to their own needs, cultures and identities.

By exploring academic practices and discourse conventions with students, teachers can help them see the options available to them when engaging in their disciplines.

Another trajectory of consciousness raising is discussed by Johns (1997: 38-50) as a 'socioliterate approach' where learners acquire academic literacies via exposure to discourse from a variety of social contexts and inquiring into their own literate lives and the literacy

practices of others. Johns recommends introducing students to the concepts of genre and context through familiar 'homely' genres, such as wedding invitations, then moving to explore pedagogic genres like textbooks and exam prompts, and then less familiar academic genres. This helps students to gain an understanding of the ways register feature interact with social purposes and cultural forces in known genres before they study academic genres.

2.8.2. Scaffolding and grammatical competence

Scaffolding is a key aspect of many methodologies and refers to means of providing support for learners as they build their understanding of texts and their linguistic competence to create them. According to Hyland (2006:91), scaffolding is a complementary methodology used to build students' discourse competence in EAP classes and follows the ideas of the Russian psychologist Lev Vygotsky (1978) in giving considerable recognition to the importance of *collaboration,* or peer interaction, and *scaffolding,* or teacher-supported learning. Together these concepts assist learners through two notions of learning:

- *Shared consciousness:* the idea that learners working together learn more effectively than individuals working separately.

- *Borrowed consciousness:* the idea that learners working with knowledgeable others develop greater understanding of tasks and ideas.

Scaffolding emphasizes interaction with experienced others in moving learners from their existing level of performance, what they can do now, to a level of 'potential performance', what they are able to do without assistance. Vygotsky termed this gap between current and potential performance 'the zone of proximal development' and argued that

progress from one to the other is not achieved only through input, but rather through social interaction and the assistance of more skilled and experienced others.

Figure 2.8 from (Feez, 1998) represents the changing nature of this collaboration in response to the learner's progress. The degree of teacher intervention and the kinds of tasks selected for students to engage with therefore play a key role in scaffolding writing and speaking, representing a cline of support from closely controlled activities to autonomous extended communication, reducing direct instruction as the learner gradually assimilates the task demands and procedures for constructing the genre effectively.

Scaffolding   **Learner progress**

Independent learner performance   Potential performance

↑   ↑

Reduced teacher involvement
Increased learner independence

↑   Zone of Proximal Development

Considerable teacher contribution   ↑

↑

Learner's entry level   Existing competence
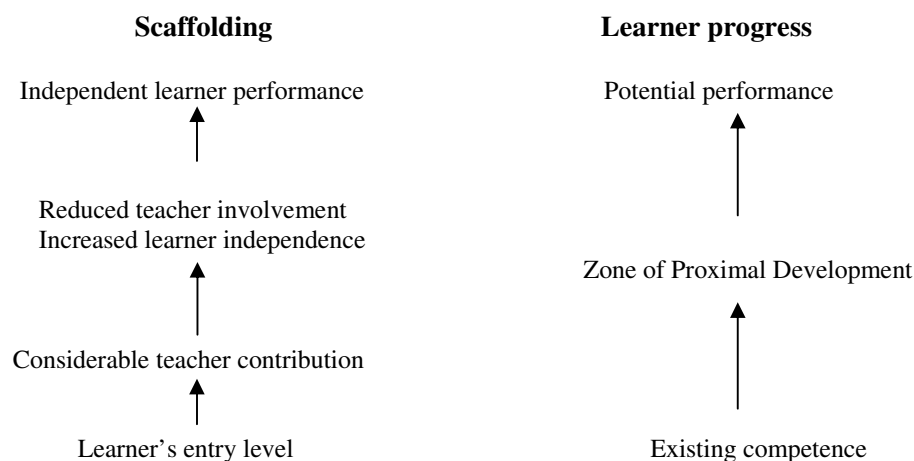
Figure 2.8: Teacher-learner collaboration (Feez 1998:27)

Teachers often assist this process by providing students with an explicit grammar, but this is not the decontextualized, disembodied grammar of more traditional methods. Adopting methods which include an explicit understanding of spoken and written texts makes language both more relevant and immediately useful to learners in their studies (Hyland 2006:92).

2.8.3. Corpora and computer-mediated learning

Computers, as Hyland (2006:297) observes, offer a range of different opportunities for language instruction, including word processing, CALL (Computer Assisted Language

Learning) programmes, concordancing, synchronous (live chat) and asynchronous (e-mail) computer-mediated communication. But like any other learning activities, the use of computers in an EAP course is effective only when it is integrated into a sustained, coherent methodology that offers learners some control over their learning and guidance from teachers. The choice of programs, sites, texts and tasks should therefore be carefully based on students' target needs and current abilities.

The value of corpus work lies in the fact that it can both replace instruction with discovery and refocus attention on accuracy as an appropriate aspect of learning. This methodology, as Hyland (2006:93) notes, not only provides an open-ended supply of language data tailored to the learner's needs rather than simply a standard set of examples, but also promotes a learner-centred approach bringing flexibility of time and place and a discovery approach to learning.

The second approach encourages an inductive understanding of language use and awareness of conventional patterns through 'data-driven learning'. Wu (1992:32) sums up this method: "Only when words are in their habitual environment, presented in their most frequent forms and their relational patterns and structures, can they be learnt effectively, interpreted properly and used appropriately".

The use of these approaches, as Hyland (2006:93) observes, has not been extensively studied, but they do provide student-centred learning contexts with opportunities for 'socio-collaborative' interaction and negotiation with teachers and peers which is believed to promote language learning. Warschauer (2002) shows how some teachers are using network resources in their classes. The fact that students have relative autonomy and are interacting for

a genuine purpose encourages participation, and the experience of participating in these modes can develop a sense of growing involvement in an academic community.

2.8.4. The impact of learners' knowledge

Teaching ESP is different from EFL because learners have knowledge that they need to use which we, the ESP teachers, generally do not have. This can seem threatening until we realize that our learners do not expect us to have such knowledge. … Doctors do not expect English teachers to diagnose, prescribe, prevent or cure illness; they expect some understanding of the patient-doctor or nurse-doctor interactions so they can learn appropriate language (Dudley-Evans and St. John 1998:188). These aspects of knowledge influence the *roles and relationships* between ESP teachers and ESP learners on the one hand and *teaching and learning materials* on the other.

Regarding the roles and relationships, as Dudley-Evans and St. John (1998:189) suggest, an ESP teacher has to play the role of a 'consultant' not a 'font of all wisdom'. The ESP teacher must acknowledge and use the learners' greater knowledge of the carrier content. An appropriate diagrammatic representation of many ESP situations would be the figure on the left not the figure on the right (ibid.):

ESP teacher

ESP teacher ⟸====⟹ ESP learner

ESP learner
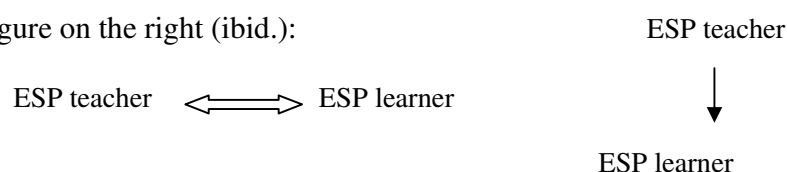
Exactly how this role is developed depends on the learners' experience, cultural expectations and what status a teacher has and how status is awarded (ibid.).

2.8.5. Deep-end strategy

Brummfit (1978) suggests that the communicative movement involves a shift from the traditional 'present-practice-production' (PPP) sequence to one where the learner first communicates with available resources. Presentation and practice follow if found necessary. For Brumfit this sequence's major advantage is that teaching content becomes 'student-determined' – based on learners' needs revealed at the first stage. The sequence also practices important risk-taking skills because the learner attempts to communicate at the first stage, perhaps using inadequate resources. For this reason, Johnson (1980) calls it the 'deep-end strategy' – the learner is 'thrown in at the deep end'.

In the context of ESP, as Basturkmen (2006:4) observes, some classroom methodologies make extensive use of simulations, such as case studies from law or business. Students are asked to perform the simulation from the outset with either no or minimal input from the teacher. Learners are cast into a situation where they need to use English in order to perform, a situation in which they have to communicate using whatever English they have at their disposal. In this way, teachers and learners can find out in what ways the learners' knowledge of English is sufficient for the task and in what ways it fails them. Instruction can then focus on the aspects of language that were problematic for the learners.

Dudley-Evans and St. John (1998:190) suggest that the deep-end strategy is more appropriate for intermediate plus students than the PPP tradition of EFL. They (ibid) observe, in practice the deep-end strategy involves providing preparation time before performance. In the PPP tradition a prior decision is made by the materials writer as to what language and skills (a) should/will be needed and (b) will be lacking. The strength of the deep-end strategy is that the approach to the task is the students' and is likely to reflect their personal and

professional world. The deep-end strategy is particularly effective on short intensive courses and where learners are proficient in the communicative events in their L1. They (ibid.) conclude (p. 290): "We have emphasised that there is no one methodology for ESP. In some cases, especially in the more 'common-core' EGAP or ESAP classes, a more traditional methodology based on PPP (present, practice, perform) may be appropriate."

2.8.6. Engaging with the disciplines

Identifying the importance of well contextualized EAP instruction based on the needs of students and subject teachers and the insights gained from the implications of EGAP and ESAP distinction (discussed earlier), have led to various ways of matching language teaching to the assignments, discourses and activities of content course. "This kind of work generally involves some cooperation with the actual subject department. Such contacts with the department and the possibilities for research into disciplinary communication often raise the status of EAP lecturers in the eyes of subject departments" (Dudley-Evans and St. John 1998:42). They (ibid.) suggest three levels of cooperation: *Cooperation, Collaboration,* and *Team-Teaching.*

- *Cooperation* refers to the use of subject teachers as specialist informants and involves language teacher taking the initiative in asking questions and gathering information about the students' subject course and the conceptual and discoursal framework of the discipline. This is part of the target needs analysis where the EAP teacher finds out what is going on in the subject department and the discipline. Information is usually collected by interviews, questionnaires, observations and by studying materials and texts. Beyond this, as Hyland (2006:86-7) puts, cooperation can involve discussion

with subject tutors to introduce alternative readings in the EAP course, to bring different perspectives to the content, and to analyse relevant discourse texts such as lectures, textbooks and essays.

- *Collaboration* is further along the involvement continuum and refers to the direct working together of language and subject teacher outside the classroom. Dudley-Evans and St. John (1998:44) suggest three options here:

   1. Subject tutors offer advice on readings, vocabulary preparation, etc., so that the EAP class can prepare students for a subsequent subject class. The objectives of the EAP course are thus subordinate to those of the subject course.

   2. The subject department either produces or provides input into the material produced for students to work with in the EAP class. This may also take the form of joint assessment. There is greater equality in this relationship than in the first option.

   3. The EAP course is taken in conjunction with subject course in an *adjunct model.* Here instruction is largely focused on addressing the study and literary demands of subject course, often discussing videos of lectures, set texts, and course topics from different perspectives.

- *Team-teaching* involves the closest engagement with the subject discipline as subject and EAP teachers work together in the same classroom. While costs and resources often restrict opportunities for this, pioneering work at Birmingham University in the UK on lecture comprehension shows that it can be successful. Here the subject tutor and EAP teacher followed up each lecture with a series of questions on a recording of

the lecture, including a discussion of key points and development of note-taking skills (Johns and Dudley-Evans 1980).

2.8.7. Integrate the methodologies of other disciplines

According to Dudley-Evans and St. John (1998:191), in the ESP situation we also need to activate and build on the learning styles and strategies which have been developed through the specialist field, that is through the academic and professional culture. For example, extracting information into tables, flowcharts and other diagrammatic formats is often more natural for EST learners than for their teachers. They (ibid.) go on saying that a strength of ESP methodology is the way in which language learning and subject learning approaches can be integrated. Widdowson (1983:108-9) referred to this when he wrote "ESP is (or ought logically to be) integrally linked with areas of activity (academic, vocational, professional) which …. represent the learners' aspirations". Swales (1990:72-3), elaborating on the notion of task, concludes "pedagogical text and pedagogical task need to be inter-related."

Two examples of activities which have been developed through the field of medicine are *case studies* and *project works*. By integrating these methodologies in ESP courses and books we can provide students with some aspect of a real-life scenario, through which they can apply and integrate knowledge, skills, theory and any experience. Even the roles of these methodologies vary from one profession to another.

Case studies: Case studies are a feature of many professional courses such as medicine, business, law and engineering. Their purpose is to present students with some aspect of real-life scenario, through which they can apply and integrate knowledge, skills, theory and any experience. Dudley-Evans and St. John (1998:192) referring to the difference of case studies

in law and medicine say: 'in law, cases establish precedent; in medicine, case conferences can take the form of an enquiry as to whether there is anything else that can be done. Both the case and the way it is used can reflect the learners' professional world (Charles 1984, cited in Dudley-Evans and St. John 1998:193).

Project work: In the project work, as Dudley-Evans and St. John (1998:195) observe, it is the students who find and assimilate information for a brief that, preferably, they have generated for themselves. The degree of involvement and ownership is thus much higher. Project work has become a standard feature of much EAP work as most students have to carry out a project during their undergraduate studies (in postgraduate studies the project is the dissertation) and EAP practitioners have devised work to parallel these. In subject projects, according to Dudley-Evans and St. John (1998:195-6), students generally have to:

1. generate a hypothesis
2. carry out a literature review
3. test the hypothesis
4. write a report
5. give an oral presentation or seminar

While many EAP courses now include input on all these aspects, the EAP project rarely runs in parallel time with the subject project. Therefore, ESP teachers have to devise project situations (Dudley-Evans and St. John 1998:196). This requires a high degree of creativity. More often projects are based on library research, engaging individuals in extensive purposeful reading followed by a written report and oral presentation (Bloor and St John 1988, cited in Dudley-Evans and St. John 1998:196).

Implications Dudley-Evans and St. John (1998:196) conclude:

"In many situations in life we gather information from more than one source, collate it, select from it and then transform it into spoken or written format to transmit to someone else. In

ESP, it is appropriate to provide opportunities for this, for example by giving several texts for reading or listening and setting a task that exploits them jointly. The gathering and then transmitting process involves a minimum of two skills and probably all four, thus it is also often appropriate to use an integrated skills approach. These are features common to both project work and case studies which can also be built into smaller scale activities."

2.8.8. A synthesis of the methodological aspects

A coursebook needs to address:

1. Areas of language knowledge: pronunciation, vocabulary, grammar, and discourse.

2. Modes of behaviour which realize this knowledge: It is concerned with the pedagogic skills of speaking, listening, reading, and writing.

3. Modes of action which are needed if this knowledge and behaviour is to be acquired in the operation of language teaching: such as syllabus design, the content of language courses, and aspects of methodology, and evaluation.

Candlin and Widdowson in their introduction to Nunan's (1988b:*ix*) book *Syllabus design* elaborate on a scheme for teacher education which consists of three sub-series of books covering the above mentioned areas of enquiry and maintain: "This subdivision of the field is not meant to suggest that different topics can be dealt with in isolation. … Clearly, an enquiry into a mode of behaviour like speaking, for example, must also refer to aspects of language knowledge which it realizes. It must also connect to modes of action which can be directed at developing this behaviour in learners."

Jordan (1997:124) concludes: "It will be realised that although there are numerous views on the methodology appropriate to ESP (and therefore to EGAP and ESAP), nevertheless

certain areas are almost always stressed as being of importance: for example, authenticity, problem-solving, communicative activities, learning by doing. It will also be appropriate that within the purview of EAP, not all the various organisational procedures, activities, tasks and exercises are appropriate or possible all the time. However, by having such a range of options available, it makes it possible to provide for a variety of circumstances and learning styles."

2.9. Current approaches to material design

In passing we can recall the earlier argument that current approaches have grown out of those immediately preceding them, and have not on the whole developed from a complete break with the past. Keeping in mind that the differences between the recent developments and their precedents might be characterized in terms of enrichment, we can see how new trends have incorporated other dimensions regarding the nature of language, the nature of language learning and social requirements, recognizing that successful language use involves many more dimensions and skills previously ignored.

2.9.1. Task-based approaches to syllabus design

As McDonough and Shaw (2003:48) observe, approaches to task-based learning (TBL) can be seen as a significant further evolution of communicative language teaching, both in terms of views of language in use and the development of classroom methodology. Although teachers have been operating with the notion for some time, it is only in recent years that frameworks have become more explicit and formalized. Ellis (2003:4-5) and Johnson (2003:5) provide a number of definitions of **task**, drawn from both the research and pedagogic literatures. The following are three of them:

1. **Prabhu (1987)** 'an activity which required learners to arrive at an outcome from given information through some process of thought, and which allowed teachers to control and regulate that process'

2. **Nunan (1989)** 'a piece of classroom work which involves learners in comprehending, manipulating, producing, or interacting in the target language while their attention is principally focused on meaning rather than form. The task should also have a sense of completeness, being able to stand alone as a communicative act in its own right'

3. **Lee (2000)** '(1) a classroom activity or exercise that has: (a) an objective obtainable only by the interaction among participants, (b) a mechanism for structuring and sequencing interaction, and (c) a focus on meaning exchange; (2) a language learning endeavor that requires learners to comprehend, manipulate, and/or produce the target language as they perform some set of workplans'

Implications: Ellis (2003:9-10), then, identifies the following criterial features of a task:

1. A task is a workplan.
2. A task involves a primary focus on meaning.
3. A task involves real-world processes of language use.
4. A task can involve any of the four language skills.
5. A task engages cognitive processes.
6. A task has a clearly defined communicative outcome.

Shavelson and Stern (1981) suggest that in planning instructional tasks, teachers need to consider:

1. the subject matter to be taught
2. materials, i.e. those things the learner will observe/manipulate
3. the activities the teachers and learners will be carrying out

4. the goals for the tasks
5. the abilities, needs and interests of the students
6. the social and cultural context of instruction

Long (1985:91), who uses needs analysis as his point of departure, offers the following procedure for developing a task-based syllabus:

1. Conduct a needs analysis to obtain an inventory of target tasks.
2. Classify the target tasks into task types.
3. From the task types, derive pedagogical tasks.
4. Select and sequence the pedagogical tasks to form a task syllabus.

Classifying tasks

Ellis examines four approaches to classifying tasks (p.211-6):

A. A pedagogic classification (Willis 1996)

1. Listing, i.e. where the completed outcome is a list.
2. Ordering and sorting, i.e. tasks that involve sequencing, ranking, categorizing or classifying items.
3. Comparing, i.e. tasks that involve finding differences or similarities in information.
4. Problem-solving, i.e. tasks that demand intellectual activity as in puzzles or logic problems.
5. Sharing personal experiences, i.e. tasks that allow learners to talk freely about themselves and share experiences.
6. Creative tasks, i.e. projects, often involving several stages that can incorporate the various types of tasks above and can include the need to carry out some research.

B. A rhetorical classification

A rhetorical classification of tasks draws on theories of rhetoric that distinguish different discourse domains in terms of their structure and linguistic properties – narrative, instructions, reports, etc. Such a classification often underlies language

courses for academic purposes (for example, Arnaudet 1984). An alternative, more theoretically satisfying approach to classifying tasks rhetorically is to utilize the concept of *genre,* defined by Swales (1990:58) as a class of communicative events, the members of which share some set of communicative purposes. He suggests that the ideal pedagogic vehicle for teaching genres is 'task'. For Swales, however, a task must incorporate an authentic communicative purpose in order to qualify as a genre-based task. This requires establishing the 'socio-cultural situation' of a task by identifying the discourse community to which the genre under consideration belongs.

C. A cognitive classification

Prabhu (1987) distinguishes three general types of tasks based on the cognitive activity involved:

1. Information gap activity
2. Reasoning gap activity
3. Opinion gap activity

Underlying Prabhu's evaluation of these three kinds of activity is his conviction that for tasks to be successful they need to instigate 'negotiation'.

D. A psycholinguistic classification

A psycholinguistic classification of tasks sets out to establish a typology of tasks in relation to their potential for language learning.

1. Interactant relationship
2. Interaction requirement
3. Goal orientation
4. Outcome options

2.9.2. Multi-syllabus approach

There is no single organizing principle with regard to multilayered syllabuses. Swan (1985:79) justifies this approach in the following terms:

When deciding what to teach to a particular group of learners, we need to take into consideration several different meaning categories and several different formal categories. We must make sure that our students are taught to operate key functions … to talk about basic notions … to communicate appropriately in specific situations … to discuss the topics which corresponds to their main interests and needs … At the same time, we shall need to draw up a list of phonological problems … of high priority structures, and of the vocabulary which our students will need to learn. In addition, we will need a syllabus of skills … .

At first sight, as McDonough and Shaw (2003:46) observe, this is a complex, if rich, view of materials design, because several (in this case, eight) syllabus possibilities are in play. Not only do the details have to be specified for each individual organizing principle, but the principles themselves then have to be linked in a systematic way that does not leave the learner faced with a number of separate lists of items.

2.9.3. Proportional syllabus

Proportional syllabus basically attempts to develop an "overall competence" (Rabbini 2002). It consists of a number of elements with one major theme playing a linking role through the units. It is expected initially that form will be of central value, but later, the focus will veer towards interactional components. Proportional syllabus is, as a matter of fact, merging analytic and synthetic syllabus proposed by Wilkins (1976) and later modified by White (1988) in the name of Type A and Type B syllabus. If one advocates including Type B elements in syllabus, as it is the case in ESP course design, but recognizes the existence of a

threshold proficiency level, then a global syllabus which encompasses all proficiency levels would have to include elements of both Type A and Type B syllabi. The important consideration here is that the lower the level of students' proficiency, the more focus will veer towards form and the higher students' proficiency, the more focus will veer towards interactional and functional components. The syllabus needs to be dynamic, not static, with ample opportunity for feedback and flexibility. The shift from form to interaction can occur at any time and is not limited to a particular stratum of learner ability (Yalden 1983). She suggests (p.124) that different elements (linguistic forms, functional, discourse and rhetorical components, specialized content and surface features of language) be emphasized in different proportions at various phases of language learning. Figure 2.1 illustrates an example of proportional syllabus adopted from Spector-Cohen et al. (2001).
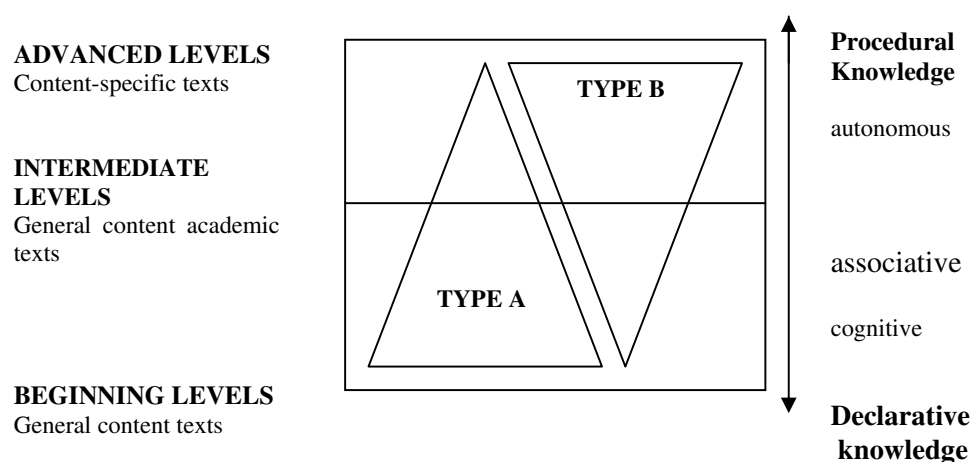
Figure 2.9: *Complimentary Pyramid Syllabus Design (CPSD): A principled eclectic approach adopted from Spector-Cohen et al. (2001).*

Chapter Three

Methodology

Chapter Three: Methodology

3.1. Introduction

This study, designed on a qualitative-quantitative basis, is a mixed methods research. It involves the triangulation of sources and methods. Richards and Schmidt (2002:565) define triangulation as follows: "(in qualitative research), the process of collecting data from several different sources or in different ways in order to provide a fuller understanding of a phenomenon." Triangulation of sources and methods can help determine the dependability of the findings obtained. It can help the researcher not only to identify discrepancies, but to *explain* several of them (Long 2005:29).

One major aspect of this study which pertains to its quantitative nature, involves data collection procedures that result primarily in numerical data which is then analysed primarily by statistical methods: needs analysis using questionnaires, analysed by SPSS statistical software.

The other aspect of this study that pertains to its qualitative nature, is the use of interviews as a preparation for designing the questionnaires, using multiple sources (i.e. review of literature, students of medicine, EFL instructors, and medical experts) and multiple methods (interviews, questionnaires, review of the literature). Where sources are concerned, Long (to appear, cited in Jasso-Aguilar 2005:131) suggests appropriate combinations of language teachers with prior experience with learners in the program, people now undergoing or who have completed the education program, those already employed in the occupation for which the perspective learners are preparing, current or future subject area teachers or

employers, documents, such as job descriptions and course reading lists, and published NA literature.

Another characteristic of this research is its *emergent* nature. This, according to Dornyei (2007:37), means that "no aspect of the research design is tightly prefigured and a study is kept open and fluid so that it can respond in a flexible way to new details or openings that may emerge during the process of investigation. This flexibility even applies to the research questions, which may evolve, change, or be refined during the study."

This chapter is divided into two sections. The first section gives an overview of the theoretical foundations and considerations in conducting this study. The second section describes the practical aspects of sampling, designing and administering the questionnaires, and considerations of sources and methods for needs analysis in this study.

Section one: An overview of theoretical considerations

Realization of a successful needs analysis for designing an ESP course requires a complex and elaborate scrutiny of the various factors that can be incorporated into the task of course design and material development. Dudley-Evans and St. John (1998:162) illustrate the complexity of the task of course design:

> *Coming up with a course design is a dynamic mix of juggling and doing jigsaw puzzles. Juggling because there are a lot of different aspects to keep in mind and keep moving between – the balls a juggler has to keep in the air. Jigsaw puzzles because we are taking different pieces and shifting them around until they fit to make a satisfactory picture.*

There are many factors to consider and a variety of situations in which courses are designed. To carry out a successful needs analysis the researcher needs to:

- establish what needs analysis is supposed to determine

- match needs analysis to means
- match needs analysis to situations
- integrate the methodologies of other disciplines
- establish how the data is to be collected

  (for a comprehensive review regarding the above mentioned factors, refer to review of literature)

3.1.1. Data collection

Sources of information for needs analysis according to Long (2005: 25) are:

1. Published and unpublished literature
2. Learners
3. Teachers and applied linguists
4. Domain experts
5. Triangulated sources

3.1.2. Justifying the use of multiple measures, multiple sources and triangulation

As mentioned earlier, the data collected for the purpose of needs analysis comes from various sources and each source sheds light on some dimensions of students' needs, perceptions and lacks. These sources are complementary and no source should be used to the exclusion of the others. Moreover, the adequacy of each of these sources is under question and researchers point out that a single approach to analysing the needs of students in any context only yields limited data (Cohen et al. 2000; Long 2005).

The following is an account of the sources for needs analysis in this study. Their merits and shortcomings are elaborated and a justification for multiple sources and methods is provided as a result:

3.1.2.1. Published and unpublished literature

An important factor that needs to be taken into account is that needs analysis does not need to begin from scratch, it can begin from a different and broader base. "Language teachers and applied linguists need to be familiar with the history of needs analysis to avoid repeating mistakes of the past and reinventing the wheel" (Long 2005:2). According to Dudley-Evans and St. John (1998:122), "teachers can trawl the literature for previous needs analyses, available materials and research findings. Not only are they able to do so but we believe that they must." Some groundwork which would include checking the literature for relevant articles, looking for EMP (English for Medical Purposes) teaching materials, contacting colleagues and organizations who might have experience of such groups, reading material about the subject or discipline are among the ways that can help us begin from a broader and different base. Dudley-Evans and St. John (1998:123) believe that we would want to be as knowledgeable as possible beforehand because then we would:

- know what we did not know – that is, we would know what to ask;
- not waste our clients' or students' time;
- appear much more professional;
- know how we should analyse the data.

However, care needs to be practiced in adopting the findings of the literature on needs analysis. They cannot be generalized easily as we are dealing with human beings – students. "Every learner is unique. Every teacher is unique. Every leaner-teacher relationship is unique, and every context is unique" (Brown 2000:14).

3.1.2.2. Learners

It goes without saying that learners have special rights when it comes to deciding the content of courses they are to undergo. Discussions of perceived and/or actual needs among teachers and students can also raise the level of awareness of both parties as to why they are doing what they are doing, lead them to reflect usefully on means and ends (Nunan 1988a:5), constitute one component in learner training (Ellis & Sinclair 1989), and especially in courses implementing a process syllabus (Breen 1984), serve as a vehicle for language learning itself. This does not mean, however, as some have suggested (see Auerbach 1995 & Long 2005), that learners will necessarily constitute a reliable source, the best source, or the only legitimate source.

"Regardless of the *methods* used to obtain it, the sufficiency of language students as *sources* of information about their present or future communicative needs is a complex and sensitive issue. … it will be the analyst's job to identify needs, administer tests, and generally complete the diagnosis. This is no different from what happens in any walk of life where specialized knowledge is involved. A physician, for example, typically begins with a general question asking a patient what brought him or her to the clinic today, but then assumes responsibility for the diagnosis itself, as well as for selecting an appropriate course of treatment" (Long 2005:20).

Learners may be pre-experience or pre-service. Alternatively, they may be in-service. All these individuals, as Long (2005:20) observes, can sometimes provide useful information on such matters as their learning styles and preferences, i.e., partial input for a *means analysis.* Understandably, however, they tend to make inadequate sources of information for a *needs analysis* (NA), since most in-service learners know about their work, but little about the

language involved in functioning successfully in their target discourse domains, and most pre-experience or pre-service learners know little about either. Askari Arani (2005), comparing first- and second-year medical students' ratings at Kashan University in Iran, reports how medical students' attitudes changed in the course of their studies. For similar studies refer to Long (2005). Some techniques have been suggested to improve learners as sources of information (Long 2005:27). Meanwhile, there are also other sources including experienced language teachers, graduates of the program concerned, employers, subject-area specialists, etc.

3.1.2.3. Teachers and Applied linguists

It is absurd, as Long (2005:27) puts, to expect applied linguists to know much, if anything, about work in a specialized domain in which they have no training or experience. While few and far between, every comparison of the intuitions of applied linguists and domain experts in this regard that I am aware of has reported serious mismatches (see Huckin & Olsen 1984; Selinker 1979; Zuck & Zuck 1984, cited in Long 2005:27). Such findings accentuate the risks involved in continuing to rely on applied linguists' intuitions in course design and materials writing.

While applied linguists and English language teachers do not have comprehensive views regarding the nature of work in a specialized domain, they have expertise and knowledge with regard to the language involved in functioning successfully in target discourse domains and effective ways of designing, sequencing, and administering tasks and activities to achieve such competencies.

3.1.2.4. Domain experts

After completing a study of the rhetorical structure of two astrophysics texts, Tarone et al. (1981, cited in Long 2005:27) were clear about the critical importance for NA of expert insider knowledge:

> *We cannot stress enough the importance of the specialist informant's contribution to our analysis. His knowledge of the subject matter was absolutely essential to our analysis of the rhetorical structure of these papers.*

> When it comes to language, conversely, the picture is very different. When asked about their language needs, most domain experts have proved unreliable, not just at the detailed linguistic level, but also where higher discourse events are concerned. "Using task as the unit of analysis (as opposed, say, to asking them about structures, notions, and functions) enables domain experts to provide quality information of the kind they do posses, with linguistic information to be obtained via analysis of target discourse samples" (Long 2005:28). Combining domain experts and language proficiency experts in a team can produce successful task-based language NAs (see, e.g., Lett 2005).

3.1.2.5. Triangulation and comparisons of sources and methods

> *"Triangulation by source and/ or methods is an important procedure whose use, to the best of my knowledge, has with very few exceptions been ignored in the literature until recently."* (Long 2005:29)

Many NAs for ESP programs involve data from different sources and/ or data gathered via different methods. Such studies have found differences, often large differences, in the views of different classes of informants (see, e.g., Iwai et al. 1999; Markee 1986; Ogata 1992, cited in Long 2005:29), but most have stopped there, content to report the differences and leave it at that. Triangulation of sources and methods can help determine the dependability of the

findings obtained. It can help the researcher not only to identify discrepancies, but to *explain* several of them.

As Jasso-Aguilar (2005:127) observes, several researchers have pointed to the inadequacy of outsiders' intuitions and the value of insiders' perspectives in NA, curriculum development and materials design for language teaching, as well as the importance of using multiple sources and methods (Long 2005; Ramani et al. 1988; L. West 1984; R. West 1994, cited in Jasso-Aguilar 2005:127).

Where sources are concerned, Long (to appear, cited in Jasso-Aguilar 2005:131) suggests appropriate combinations of language teachers with prior experience with learners in the program, people now undergoing or who have completed the education program, those already employed in the occupation for which the perspective learners are preparing, current or future subject area teachers or employers, documents, such as job descriptions and course reading lists, and published NA literature. He (ibid.) emphasizes the need for triangulation, a process that involves the use of multiple-data-collection methods and may also involve the incorporation of multiple data sources, investigators, and theoretical perspectives. Triangulation, as Glesne and Peshkin (1992:24) state, contributes to the trustworthiness of the data and increases confidence in research findings. Prolonged engagement in the field, persistent observation and triangulation are procedures used by researchers working within the qualitative research or naturalistic research traditions to help them validate their data and to increase the credibility of their interpretations (Davis 1992).

3.1.3. Methods of needs analysis

The main data collection instruments and procedures for needs analysis, as Berwick (1989, cited in Long 2005:31) observes, include both inductive and deductive procedures. The former involve use of expert intuitions, participant and non-participant observation, and unstructured interviews, from which categories of needs are derived; the later include use of devices and instruments, such as structured interviews, questionnaires, and criterion-referenced performance tests, with pre-set categories.

The following are the procedures elaborated by Long (2005: 31-65), some requiring more expertise or time than others, and some being more appropriate than others for different situations or for use with different kinds of informants: 1. Non-expert intuitions, 2. Expert practitioner intuitions, 3. Unstructured interviews, 4. Structured interviews, 5. Interview schedules, 6. Surveys and questionnaires, 7. Language audits, 8. Ethnographic methods, 9. Participant observation, 10. Non-participant observation, 11. Classroom observation, 12. Diaries, journals and logs, 13. Role-plays, simulations, 14. Content analysis, 15. Discourse analysis, 16. Register/ rhetorical analysis, 17. Computer-aided corpus analysis, 18. Genre analysis, 19. Task-based, criterion-referenced performance tests, 20. Triangulated methods. Some of the methods of needs analysis used in this study are elaborated below.

3.1.3.1. Sampling

"The *sample* is the group of participants whom the researcher actually examines in an empirical examination and the *population* is the group of people whom the study is about. That is, the sample is a subset of the population that is *representative* of the whole population" (Dornyei 2007:96). The issue of representativeness is crucial because, as Milory

and Gordon (2003) along with many other scholars point out, the strength of the conclusions we can draw from the results obtained from a selected small group depends on how accurately the particular sample represents the larger population.

Broadly speaking, as Dornyei (2007:97) notes, sampling strategies can be divided into two groups: (a) scientifically sound 'probability sampling', which involves complex and expensive procedures that are usually well beyond the means of applied linguists, and (b) 'non-probability sampling', which consists of a number of strategies that try to achieve a trade-off, that is, a reasonably representative sample using resources that are within the means of the ordinary researcher. Probability sampling includes: *1. Random sampling, 2. Stratified random sampling, 3. Systematic sampling.* We can distinguish three main non-probabilistic sampling strategies: *1. Quota sampling* and *dimensional sampling, 2. Snowball sampling, 3. Convenience or opportunity sampling.*

As Long (2005:34) points out, many NAs are conducted using a *convenience sample,* i.e. informants available and willing to participate. Dornyei (2007:98) maintains, the most common sample type in L2 research is the 'convenience' or 'opportunity sample', where an important criterion of sample selection is the convenience of the researcher.

There is, as Dornyei (2007:100) highlights, a potential pitfall that might put the validity of an investigation at risk: the problem of participant self-selection. Problems can arise, for example, when:

- Researchers invite volunteers to take part in a study (occasionally even offering money to compensate for their time).

- The design allows for a high degree of dropout (or 'mortality'), in which case participants self-select themselves *out* of the sample.

- Participants are free to choose whether they participate in a study or not (for example, in postal questionnaire surveys).

Brown (2001:85) explains this well with regard to questionnaire surveys:

The problem is that the types of respondents who return questionnaires may be a specific type of 'eager-beaver' or 'gung-ho' respondent. Thus the results of the survey can only be generalized to 'eager-beaver' or 'gung-ho' people in the population rather than to the entire population.

The researcher needs to take some measures to avoid these pitfalls. Arranging a time with ESP or subject teachers to administer the questionnaires in their classes under the supervision of their teacher and researcher is an effective measure.

How large should the sample be? Unfortunately, as Dornyei (2007:99) observes, there are no hard and fast rules in setting the optimal sample size; the final answer to the 'how large/small?' question should be the outcome of the researcher considering several broad guidelines. The literature on conducting questionnaires in second language research indicates that there is no rule in setting the optimal sample size. However, Dornyei (2003, cited in Alharby 2005) indicates three major guidelines to determine an appropriate sample size:

1. Having 1% to 10% of the targeted population is adequate to represent an accurate sample of the population.

2. The return rate with voluntary questionnaires is between 20% to 50%.

3. L2 studies based on questionnaires need a minimum of 100 respondents to reach statistical significance.

Dornyei (2007:99) reports: In the survey research literature a range of between one per cent to ten per cent of the population is usually mentioned as magic sampling fraction, with a minimum of about 100 participants. However, the more scientific the sampling procedures,

the smaller the sample size can be. The following rough estimates of sample sizes for specific types of quantitative methods have also been agreed on by several scholars (Dornyei 2007:99-100) :

- *Correlational research* – at least 30 participants;

- *Comparative and experimental procedures* – at least 15 participants in each group;

- *Factor analytic and other multivariate procedures* – at least 100 participants.

When setting the final sample size, it is advisable to leave a decent 'margin' to provide for unforeseen or unplanned circumstances. For example, some participants are likely to drop out of at least some phases of the project (Dornyei, 2007:100).

3.1.3.2. Questionnaire surveys

Considerable expertise exists in questionnaire design and item-writing in social sciences (see, e.g., K.E. Bailey 1982; Bernard 1994 cited in Long 2005:38). Questionnaire has become one of the most popular research instruments applied in the social sciences. The popularity of questionnaires , as Dornyei (2007:101) observes, is due to the fact that they are relatively easy to construct, extremely versatile and uniquely capable of gathering a large amount of information quickly in a form that is readily accessible. Indeed, the frequency of use of self-completed questionnaires as a research tool in applied linguistics is surpassed only by that of language proficiency tests. Yet, there does not seem to be sufficient awareness in the profession about the theory of questionnaire design and processing.

According to Dornyei (2007:102), broadly speaking, questionnaires can yield three types of data about the respondent:

- *Factual questions* which are used to find out certain facts about the respondents, such as demographic characteristics (for example, age, gender, and race), residential location, marital and socio-economic status, level of education, occupation, language learning history, amount of time spent in an L2 environment, etc.

- *Behavioural questions* which are used to find out what the respondents are doing or have done in the past, focusing on actions, life styles, habits, and personal history.

- *Attitudinal questions* which are used to find out what people think, covering attitudes, opinions, beliefs, interests, and values.

3.1.3.2.1. Considerations in designing questionnaires

One central issue about questionnaire design concerns how the items to be responded to are actually worded. Long (2005:38) refers to some pitfalls to be avoided. They include:

- ➢ Double-barreled questions ("Do you read and write letters to customers in English?" Are your students able to understand your lectures in English and ask clarification questions clearly when necessary?"),

- ➢ Overly complex or technical wording ("Do you ever have difficulty with telephone pre-closing?"),

- ➢ Leading questions ("Should sales staff be able to speak Spanish fluently?"),

- ➢ Ambiguity ("Do you have difficulty understanding everyday French?"),

- ➢ Abstractness ("Do you find reading English difficult?"),

- ➢ Sensitive or threatening questions ("Do you skip reading assignments if they are in English?"),

- ➢ and especially, irrelevant questions.

As Robson (1993:243) puts, "the desire to use open-ended questions appears to be almost universal in novice researchers, but is usually rapidly extinguished with experience". Thus, most professional questionnaires are primarily made up of 'closed-ended' items, which do not require the respondents to produce any free writing; instead, the respondents are to choose one of the given alternatives. And the most famous type of closed-ended items is the 'Likert scale'. Having said that, most questionnaires do contain certain partially open-ended items (Dornyei 2007:105).

3.1.3.2.2. Developing and piloting the questionnaire

Regarding questionnaires in Second Language NA, Long (2005:39) notes, "the needs analyst will do better to begin with interviews of faculty and students, or with study of syllabuses and actual tasks. This is a more valid starting point, and one that can inform subsequent questionnaire construction". Dornyei (2007:112) elaborates on the stepwise process of the developing and piloting of a questionnaire:

> ➢ *Drawing up an item pool* The first step is to let our imagination go free and create as many potential item for each scale as we can think of – this collection is referred to as 'the item pool'. In doing so we can draw inspiration/ideas from two sources: (a) qualitative, exploratory data gathered in interviews (one-to-one or focus group) …, and (b) established/published questionnaire in the area (borrowing questionnaire items is an acceptable practice if the sources are properly acknowledged).
>
> ➢ *Initial piloting of the item pool* In order to reduce the large list of questions in the item pool to the intended final number, it is useful to first ask 3-4 trusted and helpful colleagues or friends to go through the items and provide feedback.

> *Final piloting (dress rehearsal)* Based on the feedback received from the initial pilot group we can normally put together a near-final version of the questionnaire that 'feels' satisfactory and that does not have any obvious glitches. However, we still do not know how the items will work in actual practice, that is, whether the respondents will reply to the items in the manner intended by the questionnaire designers. There is only one way to find out: by administering the questionnaire to a group of about 50 respondents who are in every way similar to the target population the instrument was designed for.

> *Item analysis* The answers of the pilot group are submitted to statistical analyses to fine-tune and finalize the questionnaire. The procedure usually involves checking three aspects of the response pattern: (a) missing responses and possible signs that the instructions were not understood correctly; (b) the range of responses elicited by each item. We should exclude the items that are endorsed by almost everyone or by almost no one because they are difficult if not impossible to process statistically; and (c) the internal consistency of multi-item scales.

3.1.3.2.3. Administering the questionnaire

Questionnaire administration procedures play a significant role in affecting the quality of the elicited responses. The following strategies have been found effective (Dornyei 2007:114):

1. *Advance notice,*
2. *Attitudes conveyed by teachers, parents, and other authority figures,*
3. *Respectable sponsorship,*
4. *The behaviour of the survey administrator,*
5. *Administrator attitudes,*
6. *Communicating the purpose and significance of the survey.*

In applied linguistic research, group administration is the most common method of having questionnaires completed, partly because the typical targets of the surveys are language learners studying within institutional contexts, and it is often possible to arrange to administer the instrument to them while they are assembled together, for example, as part of a lesson (Dornyei 2007:113).

3.1.4. Summary

At this stage it will be helpful to look at a summary of the steps involved in conducting a needs analysis (Jordan 1997:23):

10. Evaluate procedures and results
9. Implement decisions (i.e. decide upon syllabus, content, materials, methods, etc.)
8. Determine objectives
7. Analyse and interpret results
6. Collect data
5. Select methods of collecting data
4. Acknowledge constraints/limitations
3. Decide upon the approach (es)
2. Delimit student population
1. Purpose of analysis
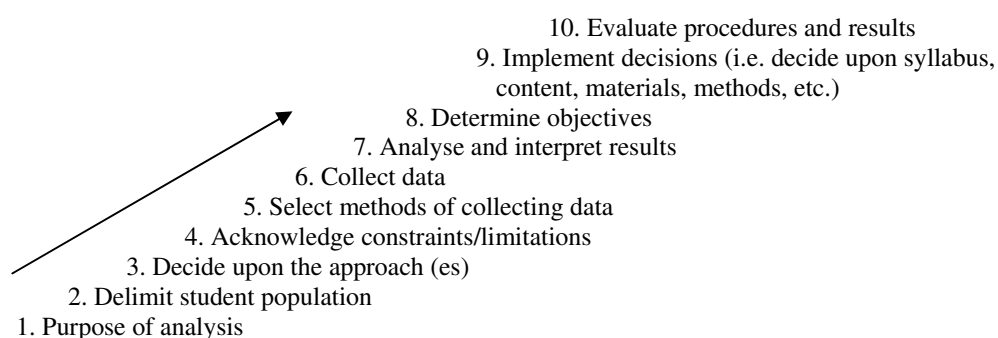
Steps in needs analysis (Jordan 1997:23)

Section two: practical aspects

3.2.1. Sources for needs analysis in this study

3.2.1.1. Published and unpublished literature

The related literature on ESP/EAP/EMP is one of the four pillars (sources of information) of this study on which the conclusions and suggestions are based. Figure 3.1 illustrates this relationship.
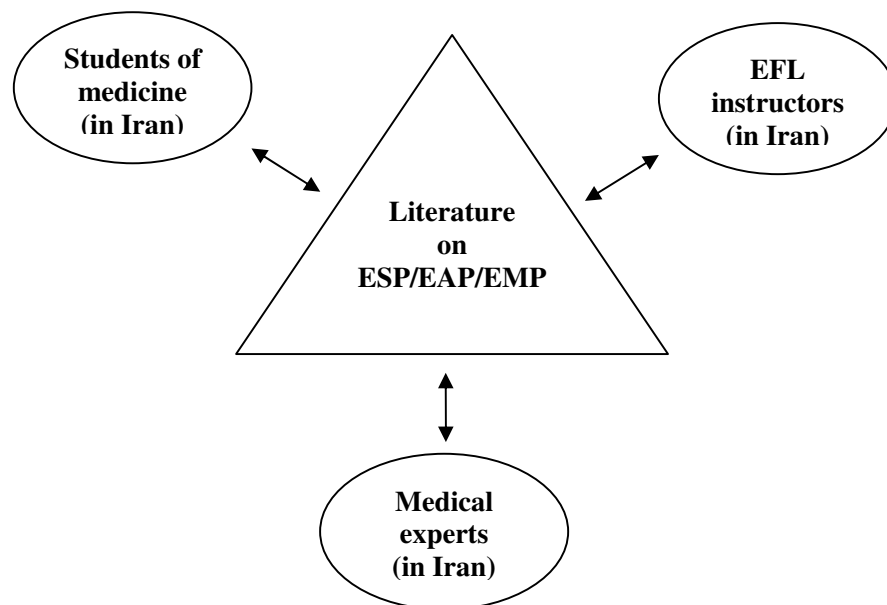
Figure 3.1: Four sources of needs analysis in this study

The insights gained from the review of the related literature and what has already been done can act as a helpful and efficient tool in interpreting the descriptive information gained through the questionnaires designed for the other sources (learners, EFL instructors, and domain experts and professionals).

In this regard, chapter two (review of the related literature) contains a comprehensive review of published and unpublished literature on principles, issues, and considerations in

designing, implementing, and evaluating ESP/EAP/EMP materials and courses. A large number of relevant articles in reputable and prominent journals, books, internet sources, etc. have been thoroughly reviewed and cited in a coherent and purposeful way to get a clear picture and a solid foundation. Meanwhile, the EMP materials taught in Iran have been thoroughly reviewed to get some insight about their content, methodology, drawbacks, etc. The review of the related literature has helped the researcher

- ➢ have a sound basis in interpreting the descriptive information gained through the questionnaires designed for the other sources (i.e. learners, EFL teachers, and domain experts and professionals).

- ➢ know what has been done and what needs to be done and consequently learn what to ask and why.

- ➢ avoid repeating the mistakes of the past and reinventing the wheel.

- ➢ be to the point and not waste the participants' time.

- ➢ know what to look for and how to analyse the data.

3.2.1.2. Iranian students of medicine majoring in Iranian universities

Since students' attitudes and perceptions change during their course of study and in-experience students tend to have a better perspective and understanding of their field and needs compared with pre-experience students (see Askari Arani 2005 and Long 2005), it was decided to exclude the freshers. Figure 3.2 illustrates the English courses presented to students of medicine in Iran. Only those who were in the third semester and above and had already passed EGAP and EMP1 courses were included in the study as participants and subjects of the study.
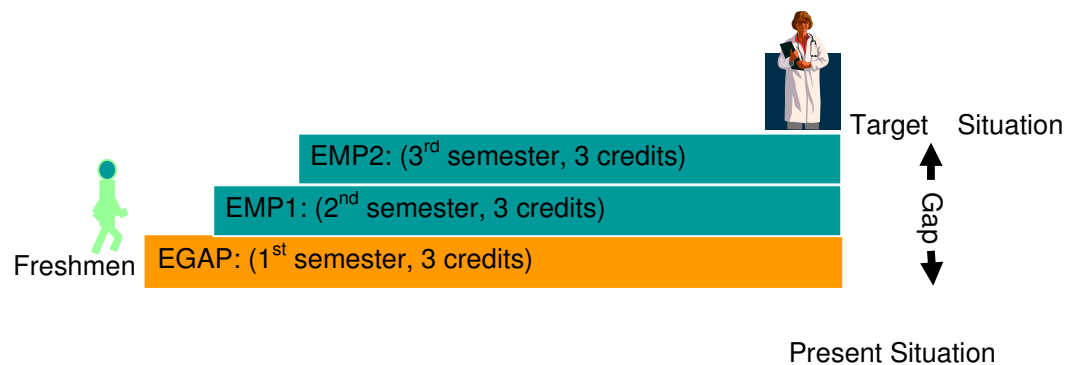
Figure 3.2 *Three English courses presented to the students of medicine in Iran*

Using a convenience sample (see 3.1.3.1), nine universities located in various parts of Iran (North, Centre, South) were selected. Based on prior interviews and consultation with experienced teachers and colleagues teaching in these universities, it was estimated that about 1200 students can be invited to answer the questionnaires. Finally 731 (420 female and 311 male) Iranian students of medicine studying at Iranian universities were included in this study out of 847 students who had answered the questionnaires. Out of 116 students who were disregarded, 85 had not passed EGAP or/and EMP1 and 31 students had not answered the questionnaire completely (refer to 3.1.3.1. for considerations of sample population size). Table 3.1 represents the number of students of medicine who were included in this study and their universities.

1. Tabriz University	111	6. Tehran University	59
2. Islamic Azad University – Tabriz Branch	106	7. Islamic Azad University–Tehran Branch	111
3. Orumiyeh University	95	8. Shiraz University	67
4. Islamic Azad University – Orumiyeh Branch	76	9. Islamic Azad University –Shiraz Branch	45
5. Iran University	61	**Total** **731 students of medicine**	

Table 3.1 *The number of students of medicine who were included in this study and their universities*

3.2.1.3. EFL teachers in Iran

Out of 75 EFL teachers teaching in various universities of Iran who were invited to answer the questionnaires, 56 answered the questionnaires completely. These teachers are mostly experienced teachers and have had various contributions to ESP/EAP teaching in Iran such as the first ESP/EAP National Conference in Iran (2005). Table 3.2 represents the number of EFL instructors who were included in this study and their affiliated universities.

1. Tabriz University	9	6. Tehran University	3
2. Islamic Azad University – Tabriz Branch	11	7. Islamic Azad University – Tehran Branch	5
3. Orumiyeh University	6	8. Shiraz University	5
4. Islamic Azad University – Orumiyeh Branch	9	9. Islamic Azad University – Shiraz Branch	4
5. Iran University	4	**Total** **56 EFL Teachers**	

Table 3.2 *The number of EFL instructors who were included in this study and their affiliated universities*

3.2.1.4. Medical academics and professionals in Iran

Under this category, the researcher was looking for those domain experts who have both academic and professional involvement and are in constant contact with medical students. It was, therefore, decided to include only those who fulfil the following requirements:

1. They should be graduates of the program concerned.

2. They should be involved in the profession of medicine as medical specialists.

3. They should be academics and subject-matter teachers at Iranian academic settings.

The rationale behind this decision was that those with the above mentioned features have the highest level of involvement and concern in the professional and academic settings for the following reasons:

1. Being the graduate of the program concerned, they have the experience of being the student of the same system and, as a result, have a better perspective and understanding of their problems and requirements.

2. As a professional they need to keep abreast of the latest developments in their field, attend the seminars and in-service trainings, report cases, etc.

3. As academics they need and are required to read and write articles for medical journals, present papers, attend the seminars, etc.

Their perspectives were expected to be more comprehensive than those who are graduates of other programs, or are only a doctor or a subject teacher.

Out of 145 medical academics and professionals teaching in nine universities of Iran who were invited to answer the questionnaires, 104 answered the questionnaires completely. Table 3.3 represents the number of medical academics who were included in this study and their affiliated universities.

1. Tabriz University	31	6. Tehran University	8
2. Islamic Azad University – Tabriz Branch	17	7. Islamic Azad University –Tehran Branch	9
3. Orumiyeh University	15	8. Shiraz University	5
4. Islamic Azad University – Orumiyeh Branch	9	9. Islamic Azad University – Shiraz Branch	4
5. Iran University	6	**Total**	**104 Medical Academics**

Table 3.3 *The number of medical academics who were included in this study and their affiliated universities*

3.2.2. Participants

3.2.2.1. Participants in the interview phase of the study

The participants in the interview phase of the study included 40 students of medicine, 5 medical experts and academics, and 5 EFL teachers from various universities of Iran.

3.2.2.2. Participants who took part in the questionnaire survey

The participants who took part in the questionnaire survey included 731 Iranian students of medicine studying at Iranian universities, 56 EFL teachers teaching in various universities of Iran, 104 subject teachers and medical professional teaching in various universities of Iran.

3.2.3. Instruments

3.2.3.1. Interview

At the beginning of the study, interviews were conducted with 40 students of medicine, 5 medical experts and academics, and 5 EFL teachers from various universities of Iran to get some ideas for designing the main instrument of this study (i.e. the questionnaires).

3.2.3.2. Questionnaires

Three Questionnaires were developed for three groups of subjects in this study: 1. Iranian students of medicine studying at Iranian universities, 2. EFL teachers teaching in various universities of Iran, 3. subject teachers and medical professionals teaching in various universities of Iran. (See Appendix B)

Questionnaires were determined to be the best means of investigation in this study. They were selected as the source of data collection for the following reasons.

1. The number of participants was expected to be fairly large.

2. They require minimal time from participants and provide a flexible and convenient way to participate in the study.

3. Participants could be assured of a certain degree of anonymity in their responses and could respond candidly.

Considerations in designing questionnaires discussed in (3.1.3.2.1) have been taken into account in designing the questionnaires for this study.

3.2.3.2.1. Developing and piloting the questionnaires

The following steps have been taken in designing and selecting the most efficient items for the questionnaires:

1. *Review of the related literature* provided the researcher with the most recent issues in ESP/EAP and curriculum development.

2. *Interview with the faculty and students of medicine* helped the researcher get familiar with their concerns, problems and priorities. This helped the researcher in developing an item pool.

3. *Drawing up an item pool:* Based on the review of literature, evaluation of students' present coursebooks, review of established/published questionnaires in the area, and interview with the faculty and students, a large number of potential items for the questionnaires were developed.

4. *Initial piloting of the item:* In order to reduce the large list of questions in the item pool to the intended final number, the researcher asked five trusted and experienced colleagues to go through the items and provide feedback. Through this, some items

were omitted for several reasons such as having no applications in the context of Iran, being repetitive, ambiguous, complex, etc. A number of items were put aside because the review of literature indicated that those areas had already been dealt with. And finally, some of the items were put aside simply because the others enjoyed more priority regarding the purpose of the study. A number of items were also corrected and improved.

5. *Final piloting:* Based on the initial feedback from the initial pilot group, a near-final version of the questionnaires that 'felt' satisfactory and did not have any obvious glitches were put together. However, to examine how the items will work in actual practice, the questionnaires were administered to a group of 60 students of medicine, 7 EFL teachers and 8 domain experts and professionals who were in every way similar to the target population the questionnaires were designed for.

➢ *Item analysis:* The answers of the pilot groups were submitted to statistical analyses to fine-tune and finalize the questionnaire. The procedure involved checking three aspects of the response pattern: (a) missing responses and possible signs that the instructions were not understood correctly; (b) the range of responses elicited by each item. The items that were endorsed by almost everyone or by almost no one were excluded, and (c) the internal consistency of multi-item scales.

3.2.3.2.2. The organization and features of the finalized questionnaires

Part A of the questionnaires was designed to deal with factual information about the three groups in this study:

Part A

- *Part A in students' questionnaire* dealt with information about students' name, gender, age, what English book they were/had been studying and whether they had passed EGAP and/or EMP1 or not.

- *Part A in EFL teachers' questionnaire* dealt with information about their name, teaching experience, and whether they taught ESP/EMP courses or not.

- *Part A in medical professionals and academics questionnaires* dealt with information about their name and whether they were both medical professionals and academics or not.

Part B

➤ *Part B common for all three groups* provided an overview of skills needed, difficulties encountered and importance perceived. It was composed of 16 items (1-16) under four heading questions. They required respondents to express their opinions about each item by marking the options on a five-point Likert scale.

Part C

➤ *Part C common for all three groups* explored the academic skills with regard to their importance and difficulty. It was composed of 32 items (17-48) under eight heading questions. They required respondents to express their opinions about each item by marking the options on a five-point Likert scale.

Part D

➤ *Part D* dealt with methodological aspects and considerations of content, timing, evaluation of the current coursebooks and students' performance in academic settings. It was composed of 9 items (49-57) for students of medicine, 10 items (49-58) for EFL

teachers, and 12 items (49-60) for medical academics and professionals. The first four items (49-52) were common for all groups. The remaining items were designed to match each group's area of activity, expertise and concern. They required respondents to express their opinions about each item by marking the options on a five-point Likert scale.

3.2.3.2.3. The research questions and their related questionnaire items

Table 3.4 summarizes the research questions with their related questionnaire items.

A. Skills

Research question	Related questionnaire items
1. In the present courses of English for Medical Purposes (EMP), how often are the students of medicine in Iran **expected to use** the skills of speaking, listening, writing, and reading? And how often do they **have difficulty** with each of these skills?	**Part B** Items 1-8 common to all three groups
2. How **important to success in Iranian medical students' course of study** are the abilities of speaking English, listening to English, writing English, and reading English?	**Part B** Items 9-12 common to all three groups
3. How **important to success in Iranian medical students' field after graduation** are the abilities of speaking English, listening to English, writing English, and reading English?	**Part B** Items 13-16 common to all three groups

B. Academic skills

Research question	Related questionnaire items
4. How **important** are the following *academic speaking skills* for Iranian students of medicine and how often do they **have problems** with them? (Having accurate pronunciation; Seminar presentation skills; Conversational exchange with patients, nurses, colleagues, etc.; Transferring information from diagrams, pictures, etc. to spoken English)	**Part C** Items 17-24 common to all three groups
5. How **important** are the following *academic listening skills* for Iranian students of medicine and how often do they **have problems** with them? (Listening to medical news; Taking effective notes; Understanding lectures and presentations; Listening to educational medical films)	**Part C** Items 25-32 common to all three groups
6. How **important** are the following *academic writing skills* for Iranian students of medicine and how often do they **have problems** with them? (Overall writing ability – using appropriate vocabulary, organization, etc.; Writing medical reports; Writing articles for medical journals; Transferring information from diagrams, tables, pictures, etc. to written English)	**Part C** Items 33-40 common to all three groups
7. How **important** are the following *academic reading skills* for Iranian students of medicine and how often do they **have problems** with them? (Reading medical textbooks; Reading medical articles and reports; Reading English newspapers and magazines; Reading and interpreting the visuals such as pictures, tables, diagrams, charts, etc.)	**Part C** Items 41-48 common to all three groups

C. Methodology, syllabus, and evaluation

Research question	Related questionnaire items
8. **When and how long** should the EMP courses be offered for the students of medicine in Iran?	**Part D:** Items 49-50 common to all three groups
9. Does the EGAP course, offered prior to EMP courses, enable students of medicine in Iran to efficiently embark on their EPM courses?	**Part D:** Item 51 common to all three groups
10. Are the present EMP coursebooks based on a careful analysis of students' needs?	**Part D:** Item 52 common to all three groups (worded differently)
11. Do the present EMP coursebooks familiarize students of medicine in Iran with the lexis and genre typical of their field?	**Part D:** Item 53 in EFL teachers' questionnaire
12. Considering the course aim and syllabus requirements, are all four skills adequately covered in the present EMP coursebooks?	**Part D:** Item 54 in EFL teachers' questionnaire
13. Do the present EMP coursebooks include advice/help on study skills and learning strategies?	**Part D:** Items 55 and 58 in EFL teachers' questionnaire
14. Do the present EMP coursebooks follow a multi-syllabus approach?	**Part D:** Items 56 and 57 in EFL teachers' questionnaire
15. Are the present EMP coursebooks appealing to students of medicine in Iran in terms of content and subject matter?	**Part D:** Item 53 in students' questionnaire
16. Are other materials such as medical reports and articles, films, etc. introduced and practiced along with the main course books? Are such materials required?	**Part D:** Items 55 and 56 in students' questionnaire

17. Are medical academics and professionals satisfied with the academic English abilities of students of medicine?	**Part D:** Item 53 in medical experts' questionnaires
18. Are students of medicine expected to have satisfactory English skills by their subject teachers? (the issue of transfer climate)	**Part D:** Items54, 55, and 56 in medical experts' questionnaires

D. Target situation analysis

Research question	Related questionnaire items
19. How often do the medical academics and professionals in Iran need English for the following purposes? (A. Reading medical reports and articles; B. Writing medical articles and reports; C. Participating and presenting in seminars; D. Communicating with patients, nurses and colleagues)	Items 57-60 in medical experts' questionnaires.

Table 3.4 The research questions and their related questionnaire items

3.2.3.2.4. Administering the questionnaires

Students' questionnaire: As Dornyei (2007:113) observes: "In applied linguistic research, group administration is the most common method of having questionnaires completed, partly because the typical targets of the surveys are language learners studying within institutional contexts, and it is often possible to arrange to administer the instrument to them while they are assembled together, for example, as part of a lesson." The questionnaires for students were administered under the supervision of their teacher while they were assembled together in the class. The students were provided with the Persian version of their questionnaire (Appendix C).

EFL teachers and medical professionals and academics: In order to ensure a high rate of return by subject-specific instructors and EFL instructors, the questionnaires were distributed and collected in each university in person. The instructors were visited in their office, informed about the aim of the research project, and requested to fill out the questionnaires. Some respondents returned the questionnaire on the same day; others returned them later.

Chapter Four

Data Analysis

&

Discussion

Chapter Four: Data Analysis & Discussion

4.1. Introduction

This chapter presents analysis and discussion of the findings of the needs analysis conducted for this study. The sources of information for this study come from **1.** 731 Iranian students of medicine studying at Iranian universities, **2.** 56 Iranian EFL teachers teaching EGAP and ESP/EMP courses at Iranian universities, **3.** 104 Iranian medical academics and professionals teaching at Iranian universities, and **4.** review of the related literature and analysis of EMP coursebooks in Iran.

To conduct the needs analysis, three questionnaires for the three groups in this study (medical students, EFL teachers, and medical academics and professionals) were developed (Appendix B). The questionnaires were divided into four parts (A, B, C, and D). Part A of the questionnaires was designed to deal with factual information about the three groups in this study:

Part A in students' questionnaire dealt with information about students' name, gender, age, university, what English book they were/had been studying and whether they had passed EGAP and/or EMP1 or not. This helped the researcher disregard those who were not students of medicine and those who had not passed EGAP and/or EMP1.

Part A in EFL teachers' questionnaire dealt with information about their name, affiliated department and university, teaching experience, and whether they had taught ESP/EMP courses or not. This helped the researcher include only those teachers who had the experience and expertise in teaching ESP/EMP courses in addition to EGAP.

Part A in medical professionals and academics questionnaires dealt with information about their name, affiliated department and university, and whether they were both medical professionals and academics or not. This helped the researcher disregard those who were only medical academics and were not involved in medical profession.

Parts B, C, and D in the questionnaires included items related to the research questions. Items 1-52 in the questionnaires were common to all three groups and were related to research questions 1-10. The remaining items were designed to match each group's area of activity, expertise and concern. All the questionnaire items required respondents to express their opinions about each item by marking the options on a five-point Likert scale. The questionnaires also included some open-ended items which invited the respondents to write any comments that they thought might be helpful.

4.2. Results

4.2.1. Results of skills needed, difficulties encountered and importance perceived

Part B of the questionnaires includes items 1-16 which are related to research questions 1-3:

➢ Research question 1: items 1-8 (common to all three groups)

➢ Research question 2: items 9-12 (common to all three groups)

➢ Research question 3: items 13-16 (common to all three groups)

Research question 1:

1. In the present courses of English for Medical Purposes (EMP), how often are the students of medicine in Iran **expected to use** the skills of speaking, listening, writing,

and reading? (items 1-4) And how often do they **have difficulty** with each of these skills? (items 5-8)

Tables 4.1 – 4.4 summarize the analysis of items 1-8 in the questionnaires which are related to research question 1. Note the following:

SM = Students of Medicine; **ET** = EFL Teachers; **MA** = Medical Academics and Professionals.

 ➢ Scale: (1. **N** = Never; 2. **R** = Rarely; 3. **S** = Sometimes; 4. **O** =Often; 5. **VO** = Very Often)

Reading

Item 1	N %	R %	S %	O %	V O %	N	Mean	SD	Expected ..
S M	0	.1	.7	4.1	95.1	731	4.94	.278	Very often
E T	0	0	0	3.6	96.4	56	4.96	.187	Very often
M A	0	0	1.9	21.2	76.9	104	4.75	.478	Very often
Item 5	N %	R %	S %	O %	V O %	N	Mean	SD	Difficulty
S M	2.7	30.1	51.3	14.4	1.5	731	2.82	.763	Sometimes
E T	0	10.7	50.0	23.2	16.1	56	3.45	.893	Sometimes
M A	0	17.3	58.7	18.3	5.8	104	3.13	.759	Sometimes

Table 4.1 *Reading: Item 1: How often are the students expected to use the skill?*
Item 5: How often do they have difficulty with the skill?

Writing

Item 2	N %	R %	S %	O %	V O %	N	Mean	SD	Expected ..
S M	11.4	62.5	24.5	1.6	0	731	2.16	.631	Rarely
E T	3.6	69.6	26.8	0	0	56	2.23	.187	Rarely
M A	13.5	72.1	14.4	0	0	104	2.01	.531	Rarely
Item 6	N %	R %	S %	O %	V O %	N	Mean	SD	Difficulty
S M	2.9	9.8	27.6	28.0	31.6	731	3.76	1.090	Often
E T	0	0	0	46.4	53.6	56	4.54	.503	Very often
M A	0	0	11.5	37.5	51.0	104	4.39	.689	Often

Table 4.2 *Writing: Item 2: How often are the students expected to use the skill?*
Item 6: How often do they have difficulty with the skill?

Speaking

Item 3	N %	R %	S %	O %	V O %	N	Mean	SD	Expected ..
S M	20.7	61.6	15.3	2.5	0	731	2.00	.677	Rarely
E T	33.9	55.4	10.7	0	0	56	1.77	.632	Rarely
M A	27.9	67.3	4.8	0	0	104	1.77	.529	Rarely
Item 7	N %	R %	S %	O %	V O %	N	Mean	SD	Difficulty
S M	1.5	10.5	23.9	30.2	33.8	731	3.84	1.054	Often
E T	0	0	3.6	42.9	53.6	56	4.50	.572	Very often
M A	0	0	13.5	35.6	51.0	104	4.38	.713	Often

Table 4.3 *Speaking: Item 3: How often are the students expected to use the skill?*
Item 7: How often do they have difficulty with the skill?

Listening

Item 4	N %	R %	S %	O %	V O %	N	Mean	SD	Expected ..
S M	36.1	62.2	4.1	2.1	0	731	1.77	.620	Rarely
E T	39.3	55.4	5.4	0	0	56	1.66	.581	Rarely
M A	29.8	68.3	1.9	0	0	104	1.72	.492	Rarely
Item 8	N %	R %	S %	O %	V O %	N	Mean	SD	Difficulty
S M	.7	8.9	23.9	31.5	35.0	731	3.91	1.000	Often
E T	0	0	0	37.5	62.5	56	4.63	.489	Very often
M A	0	0	0	57.7	42.3	104	4.42	.496	Often

Table 4.4 *Listening: Item 4: How often are the students expected to use the skill?*
Item 8: How often do they have difficulty with the skill?

Research questions 2 and 3:

2. How **important to success in Iranian medical students' course of study** are the abilities of speaking English, listening to English, writing English, and reading English? (items 9-12)

3. How **important to success in Iranian medical students' field after graduation** are the abilities of speaking English, listening to English, writing English, and reading English? (items 13-16)

Tables 4.5-4.8 summarize the analysis of items 9-16 in the questionnaires which are related to research questions 2 and 3. Note the following:

➤ **SM** = Students of Medicine; **ET** = EFL Teachers; **MA** = Medical Academics and Professionals.

➤ Scale :(1. **VL** = Very Low; 2. **L** = Low; 3. **M** = Moderate; 4. **H** = High; 5. **VH** = Very High)

Listening to English

Item 9	VL %	L %	M %	H %	VH %	N	Mean	SD	Importance
S M	28.8	50.6	16.0	4.0	1.4	731	2.00	.850	Low
E T	28.6	42.9	26.8	1.8	0	56	2.02	.779	Low
M A	29.8	56.7	13.5	0	0	104	1.84	.640	Low
Item 13	**VL %**	**L %**	**M %**	**H %**	**VH %**	**N**	**Mean**	**SD**	**Importance**
S M	14.1	28.2	32.8	13.0	11.9	731	2.80	1.190	Moderate
E T	0	0	62.5	33.9	3.6	56	3.41	.565	Moderate
M A	0	0	71.2	20.2	8.7	104	3.38	.641	Moderate

***Table 4.5** Listening to English: Item 9: How important in the course of study?*
Item 13: How important after graduation?

Speaking English

Item 10	VL %	L %	M %	H %	VH %	N	Mean	SD	Importance
S M	54.0	30.9	10.3	4.5	.3	731	1.66	.857	Low
E T	33.9	64.3	1.8	0	0	56	1.68	.508	Low
M A	38.5	61.5	0	0	0	104	1.62	.489	Low
Item 14	**VL %**	**L %**	**M %**	**H %**	**VH %**	**N**	**Mean**	**SD**	**Importance**
S M	11.6	27.4	34.6	12.3	14.1	731	2.90	1.190	Moderate
E T	0	0	75.0	21.4	3.6	56	3.29	.530	Moderate
M A	0	0	70.2	26.0	3.8	104	3.34	.551	Moderate

***Table 4.6** Speaking English: Item 10: How important in the course of study?*
Item 14: How important after graduation?

Writing English

Item 11	VL %	L %	M %	H %	VH %	N	Mean	SD	Importance
S M	29.0	41.5	20.5	6.8	2.2	731	2.12	.850	Low
E T	25.0	35.7	35.7	3.6	0	56	2.18	.855	Low
M A	27.9	62.5	8.7	1.0	0	104	1.83	.614	Low
Item 15	**VL %**	**L %**	**M %**	**H %**	**VH %**	**N**	**Mean**	**SD**	**Importance**
S M	5.5	14.5	52.1	13.5	14.4	731	3.17	1.023	Moderate
E T	0	0	8.5	46.5	45.0	56	4.37	.668	High
M A	0	0	13.5	38.5	48.1	104	4.35	.707	High

***Table 4.7** Writing English: Item 11: How important in the course of study?*
Item 15: How important after graduation?

Reading English

Item 12	VL %	L %	M %	H %	VH %	N	Mean	SD	Importance
S M	8.2	2.7	7.0	14.1	68.0	731	4.31	1.226	High
E T	0	0	0	3.6	96.4	56	4.96	.187	Very high
M A	0	0	0	4.8	95.2	104	4.95	.215	Very high
Item 16	VL %	L %	M %	H %	VH %	N	Mean	SD	Importance
S M	4.1	4.8	20.8	22.3	48.0	731	4.05	1.117	High
E T	0	0	5.4	44.6	50.0	56	4.44	.620	High
M A	0	0	8.7	45.2	46.2	104	4.38	.641	High

Table 4.8 *Reading English: Item 12: How important in the course of study?*
Item 16: How important after graduation?

4.2.2. Results of academic skills

Part C of the questionnaires includes items 17-48 which are related to research questions 4-7:

- ➢ Research question 4: items 17-24 (common to all three groups)

- ➢ Research question 5: items 25-32 (common to all three groups)

- ➢ Research question 6: items 33-40 (common to all three groups)

- ➢ Research question 7: items 41- 48 (common to all three groups)

Research question 4: (Academic speaking skills)

4. How **important** are the following *academic speaking skills* for Iranian students of medicine (items 17-20) and how often do they **have problems** with them (21-24)? (Having accurate pronunciation; Seminar presentation skills; Conversational exchange with patients, nurses, colleagues, etc.; Transferring information from diagrams, pictures, etc. to spoken English)

Tables 4.9-4.12 summarize the analysis of items 17-24 in the questionnaires which are related to research question 4. Note the following:

- ➢ **SM** = Students of Medicine; **ET** = EFL Teachers; **MA** = Medical Academics and Professionals.
- ➢ Scale :(1. **VL** = Very Low; 2. **L** = Low; 3. **M** = Moderate; 4. **H** = High; 5. **VH** = Very High)
- ➢ Scale :(1. **N** = Never; 2. **R** = Rarely; 3. **S** = Sometimes; 4. **O** =Often; 5. **VO** = Very Often)

Having accurate pronunciation

Item 17	VL %	L %	M %	H %	V H %	N	Mean	SD	Importance
S M	7.9	21.5	42.3	14.4	14.0	731	3.05	1.110	Moderate
E T	0	0	33.9	51.8	14.3	56	3.80	.672	High
M A	0	0	38.5	46.2	15.4	104	3.77	.700	High
Item 21	**N %**	**R %**	**S %**	**O %**	**V O %**	**N**	**Mean**	**SD**	**Problems**
S M	0	1.5	36.9	40.9	20.7	731	3.81	.774	Often
E T	0	0	3.6	69.6	26.8	56	4.23	.504	Often
M A	0	0	19.2	51.0	29.8	104	4.11	.696	Often

Table 4.9 *Having accurate pronunciation: Item 17: How important the skill is.*
Item 21: How often the students have problems.

Seminar presentation skills

Item 18	VL %	L %	M %	H %	V H %	N	Mean	SD	Importance
S M	4.9	13.4	26.7	30.2	24.8	731	3.56	1.143	High
E T	0	0	26.8	57.1	16.1	56	3.89	.652	High
M A	0	0	29.8	43.3	26.9	104	3.97	.756	High
Item 22	**N %**	**R %**	**S %**	**O %**	**V O %**	**N**	**Mean**	**SD**	**Problems**
S M	1.1	2.9	7.1	13.5	75.4	731	4.59	.830	Very often
E T	0	0	5.4	67.9	26.8	56	4.21	.530	Often
M A	0	0	14.4	52.9	32.7	104	4.18	.665	Often

Table 4.10 *Seminar presentation skills: Item 18: How important the skill is.*
Item 22: How often the students have problems.

Conversational exchanges with patients, nurses, colleagues, etc.

Item 19	VL %	L %	M %	H %	V H %	N	Mean	SD	Importance
S M	2.7	27.5	41.0	24.6	4.1	731	3.00	.892	Moderate
E T	0	0	53.6	33.9	12.5	56	3.59	.708	High
M A	0	0	55.8	30.8	13.5	104	3.58	.720	High
Item 23	**N %**	**R %**	**S %**	**O %**	**V O %**	**N**	**Mean**	**SD**	**Problems**
S M	1.1	12.4	59.0	14.9	12.6	731	3.25	.870	Sometimes
E T	0	0	33.9	33.9	32.1	56	3.98	.820	Often
M A	0	0	38.5	34.6	26.9	104	3.88	.804	Often

Table 4.11 *Conversational exchanges: Item 19: How important the skill is.*
Item 23: How often the students have problems.

Transforming information from diagrams, pictures etc. to spoken English

Item 20	VL %	L %	M %	H %	V H %	N	Mean	SD	Importance
S M	4.8	22.6	38.2	28.3	6.2	731	3.08	.970	Moderate
E T	0	0	44.6	42.9	12.5	56	3.68	.690	High
M A	0	5.8	33.7	33.7	26.9	104	3.82	.901	High
Item 24	N %	R %	S %	O %	V O %	N	Mean	SD	Problems
S M	2.5	3.6	41.0	27.6	25.3	731	3.70	.968	Often
E T	0	0	32.1	33.9	33.9	56	4.02	.820	Often
M A	0	0	44.2	36.5	19.2	104	3.75	.760	Often

Table 4.12 *Transforming information from diagrams, etc. to spoken English:*
Item 20: How important the skill is. Item 24: How often the students have problems.

Research question 5: (Academic listening skills)

5. How **important** are the following *academic listening skills* for Iranian students of medicine (items 25-28) and how often do they **have problems** with them (items 29-32)? (Listening to medical news; Taking effective notes; Understanding lectures and presentations; Listening to educational medical films)

Tables 4.13-4.16 summarize the analysis of items 25-32 in the questionnaires which are related to research question 5.

Listening to medical news

Item 25	VL %	L %	M %	H %	V H %	N	Mean	SD	Importance
S M	17.1	20.5	52.7	6.6	3.1	731	2.58	.952	Moderate
E T	0	5.4	66.0	25.0	3.6	56	3.27	.618	Moderate
M A	0	9.6	62.5	17.3	10.6	104	3.29	.784	Moderate
Item 29	N %	R %	S %	O %	V O %	N	Mean	SD	Problems
S M	1.8	10.0	40.1	27.6	20.5	731	3.55	.983	Often
E T	0	0	44.6	28.6	26.8	56	3.82	.834	Often
M A	0	0	28.8	44.2	26.9	104	3.98	.750	Often

Table 4.13 *Listening to medical news: Item 25: How important the skill is.*
Item 29: How often the students have problems.

Taking effective notes

Item 26	VL %	L %	M %	H %	V H %	N	Mean	SD	Importance
S M	1.2	7.3	27.5	49.4	14.6	731	3.69	.852	High
E T	0	0	32.1	35.7	32.1	56	4.00	.809	High
M A	0	0	28.8	52.9	18.3	104	3.89	.681	High
Item 30	N %	R %	S %	O %	V O %	N	Mean	SD	Problems
S M	1.2	5.7	31.7	40.4	20.9	731	3.74	.895	Often
E T	0	0	35.7	35.7	28.6	56	3.93	.806	Often
M A	0	2.9	39.4	37.5	20.2	104	3.75	.810	Often

__Table 4.14__ Taking effective notes: Item 26: How important the skill is.
Item 30: How often the students have problems.

Understanding lectures and presentations

Item 27	VL %	L %	M %	H %	V H %	N	Mean	SD	Importance
S M	.7	4.2	27.4	25.9	41.9	731	4.04	.961	High
E T	0	0	19.6	73.2	7.1	56	3.88	507	High
M A	0	0	26.0	33.7	40.4	104	4.14	.806	High
Item 31	N %	R %	S %	O %	V O %	N	Mean	SD	Problems
S M	1.8	1.6	24.6	24.5	47.5	731	4.14	.963	Often
E T	0	0	5.4	66.1	28.6	56	4.23	.539	Often
M A	0	0	18.3	31.7	50.0	104	4.32	.762	Often

__Table 4.15__ Understanding lectures and presentations: Item 27: How important
the skill is. Item 31: How often the students have problems.

Listening to educational medical films

Item 28	VL %	L %	M %	H %	V H %	N	Mean	SD	Importance
S M	1.9	6.2	55.0	26.4	10.5	731	3.37	.827	Moderate
E T	0	0	37.5	57.1	5.4	56	3.68	.575	High
M A	0	0	30.8	31.7	37.5	104	4.07	.827	High
Item 32	N %	R %	S %	O %	V O %	N	Mean	SD	Problems
S M	2.1	4.5	34.6	25.0	33.8	731	3.84	1.012	Often
E T	0	0	7.1	64.3	28.6	56	4.21	.563	Often
M A	0	0	10.6	38.5	51.0	104	4.40	.676	Often

__Table 4.16__ Listening to educational medical films: Item 28: How important
the skill is. Item 32: How often the students have problems.

Research question 6: (Academic writing skills)

6. How **important** are the following *academic writing skills* for Iranian students of

medicine (items 33-36) and how often do they **have problems** with them (37-40)?

(Overall writing ability − using appropriate vocabulary, organization, etc.; Writing medical

reports; Writing articles for medical journals; Transferring information from diagrams, tables,

pictures, etc. to written English)

Tables 4.17-4.20 summarize the analysis of items 33-40 in the questionnaires which are

related to research question 6.

Overall writing ability (using appropriate vocabulary, organization, etc.)

Item 33	VL %	L %	M %	H %	V H %	N	Mean	SD	Importance
S M	.7	7.3	46.5	10.9	34.6	731	3.72	1.041	High
E T	0	0	5.4	58.9	35.7	56	4.30	.570	High
M A	0	0	11.5	47.1	41.3	104	4.30	.667	High
Item 37	N %	R %	S %	O %	V O %	N	Mean	SD	Problems
S M	.7	4.8	38.9	26.7	29.0	731	3.79	.942	Often
E T	0	0	7.1	51.8	41.1	56	4.34	.611	Often
M A	0	0	13.5	35.6	51.0	104	4.38	.713	Often

Table 4.17 *Overall writing ability: Item 33: How important the skill is.*
Item 37: How often the students have problems.

Writing medical case reports

Item 34	VL %	L %	M %	H %	V H %	N	Mean	SD	Importance
S M	1.5	8.6	56.0	20.4	13.5	731	3.36	.874	Moderate
E T	0	0	17.9	39.3	42.9	56	4.25	.745	High
M A	0	0	14.4	39.4	46.2	104	4.32	.714	High
Item 38	N %	R %	S %	O %	V O %	N	Mean	SD	Problems
S M	.4	4.5	42.0	27.4	25.7	731	3.73	.908	Often
E T	0	0	7.1	91.1	1.8	56	3.95	.297	Often
M A	0	0	16.3	70.2	13.5	104	3.97	.548	Often

Table 4.18 *Writing medical case reports: Item 34: How important the skill is.*
Item 38: How often the students have problems.

Writing articles for medical journals

Item 35	VL %	L %	M %	H %	V H %	N	Mean	SD	Importance
S M	1.4	5.3	46.2	24.6	22.4	731	3.61	.936	High
E T	0	0	5.4	53.6	41.1	56	4.36	.586	High
M A	0	0	14.4	38.5	47.1	104	4.33	.717	High
Item 39	N %	R %	S %	O %	V O %	N	Mean	SD	Problems
S M	.3	2.1	48.6	40.9	8.2	731	3.55	.686	Often
E T	0	0	0	35.7	64.3	56	4.64	.483	Very often
M A	0	0	6.7	28.8	64.4	104	4.58	.618	Very often

Table 4.19 *Writing articles for medical journals: Item 35: How important the skill*
is. Item 39: How often the students have problems.

Transforming information from diagrams, tables, etc. to written English

Item 36	VL %	L %	M %	H %	V H %	N	Mean	SD	Importance
S M	4.8	9.4	58.1	17.6	10.0	731	3.19	.910	Moderate
E T	0	0	21.4	41.1	37.5	56	4.16	.754	High
M A	0	0	37.5	32.7	29.8	104	3.92	.821	High
Item 40	N %	R %	S %	O %	V O %	N	Mean	SD	Problems
S M	2.7	8.2	47.6	27.6	13.8	731	3.42	.921	Sometimes
E T	0	0	37.5	35.7	26.8	56	3.89	.802	Often
M A	0	0	60.6	20.2	19.2	104	3.59	. 796	Often

Table 4.20 *Transforming information from diagrams etc. to written English:*
Item 36: How important the skill is. Item 40: How often the students have problems.

Research question 7: (Academic reading skills)

7. How **important** are the following *academic reading skills* for Iranian students of medicine (items 41-44) and how often do they **have problems** with them (items 45-48)? (Reading medical textbooks; Reading medical articles and reports; Reading English newspapers and magazines; Reading and interpreting the visuals such as pictures, tables, diagrams, charts, etc.)

Tables 4.21-4.24 summarize the analysis of items 33-40 in the questionnaires which are related to research question 7.

Reading medical text books

Item 41	VL %	L %	M %	H %	V H %	N	Mean	SD	Importance
S M	0	.4	14.0	28.3	57.3	731	4.43	.741	High
E T	0	0	0	26.8	73.2	56	4.73	.447	Very high
M A	0	0	0	20.2	79.8	104	4.80	.403	Very high
Item 45	N %	R %	S %	O %	V O %	N	Mean	SD	Problems
S M	4.2	8.2	49.8	23.3	14.5	731	3.36	.969	Sometimes
E T	0	0	35.7	35.7	28.6	56	3.93	.806	Often
M A	0	0	39.4	36.5	24.0	104	3.85	.785	Often

Table 4.21 *Reading medical text books: Item 41: How important the skill is.*
Item 45: How often the students have problems.

Reading medical articles and reports

Item 42	VL %	L %	M %	H %	V H %	N	Mean	SD	Importance
S M	1.5	1.5	28.5	51.8	16.7	731	3.81	.781	High
E T	0	0	25.0	57.1	17.9	56	3.93	.657	High
M A	0	0	47.1	30.8	22.1	104	3.75	.797	High
Item 46	**N %**	**R %**	**S %**	**O %**	**V O %**	**N**	**Mean**	**SD**	**Problems**
S M	.8	1.6	25.7	33.5	38.3	731	4.07	.881	Often
E T	0	0	25.0	32.1	42.9	56	4.18	.811	Often
M A	0	0	19.2	41.3	39.4	104	4.20	.742	Often

Table 4.22 *Reading medical articles and reports: Item 42: How important the skill is. Item 46: How often the students have problems.*

Reading English newspapers and magazines

Item 43	VL %	L %	M %	H %	V H %	N	Mean	SD	Importance
S M	11.6	12.3	54.3	17.1	4.7	731	2.91	.969	Moderate
E T	0	8.9	66.1	19.0	5.4	56	3.21	.650	Moderate
M A	0	16.3	76.9	4.8	1.9	104	2.92	.534	Moderate
Item 47	**N %**	**R %**	**S %**	**O %**	**V O %**	**N**	**Mean**	**SD**	**Problems**
S M	5.3	5.6	62.4	13.0	13.7	731	3.24	.943	Sometimes
E T	0	0	44.6	37.5	17.9	56	3.73	.751	Often
M A	0	10.6	49.0	33.7	6.7	104	3.37	.764	Sometimes

Table 4.23 *Reading English newspapers and magazines: Item 43: How important the skill is. Item 47: How often the students have problems.*

Reading and interpreting the visuals such as pictures, tables, diagrams, etc.

Item 44	VL %	L %	M %	H %	V H %	N	Mean	SD	Importance
S M	10.3	13.0	53.5	16.7	6.6	731	2.96	.985	Moderate
E T	0	0	37.5	37.5	25.0	56	3.88	.788	High
M A	0	0	60.6	30.8	8.7	104	3.48	.653	Moderate
Item 48	**N %**	**R %**	**S %**	**O %**	**V O %**	**N**	**Mean**	**SD**	**Problems**
S M	.7	26.7	61.7	4.8	6.2	731	2.89	.760	Sometimes
E T	0	0	75.0	19.7	5.3	56	3.30	.597	Sometimes
M A	0	0	53.8	28.8	17.3	104	3.63	.764	Often

Table 4.24 *Reading and interpreting the visuals such as diagrams, tables, etc.: Item 44: How important the skill is. Item 48: How often the students have problems.*

4.2.3. Results of syllabus, content and methodology evaluation

Part D of the questionnaires includes the following items and their related research questions:

➢ Research question 8: items 49-50 (common to all three groups)

➢ Research question 9: item 51 (common to all three groups)

➢ Research question 10: item 52 (common to all three groups)

➢ Research question 11: item 53 (only in EFL teachers' questionnaire)

➢ Research question 12: item 54 (only in the EFL teachers' questionnaire)

➢ Research question 13: items 55 and 58 (only in the EFL teachers' questionnaire)

➢ Research question 14: items 56 and 57 (only in the EFL teachers' questionnaire)

➢ Research question 15: item 57 (only in the students' questionnaire)

➢ Research question 16: items 55 and 56 (only in the students' questionnaire)

➢ Research question 17: item 53 (only in the medical academics' questionnaire)

➢ Research question 18: items 54-56 (only in the medical academics' questionnaire)

➢ Research question 19: items 57-60 (only in the medical academics' questionnaire)

Research question 8:

8. When and how long should the EMP courses be offered for the students of medicine in

Iran?

Table 4.25 summarizes the analysis of items 49-50 in the questionnaires which are

related to research question 8. Note the following:

➢ Scale :(**1** = 1st & 2nd year; **2** = 3rd & 4th year; **3** = 5th & 6th year; **4** = 1st & last year; **5** = throughout the whole course of study)

➢ Scale :(1. **2S** = for 2 semesters; 2. **3S** = for 3 semesters; 3. **4S** = for 4 semesters; 4. **5S** = for 5 semesters; 5. **Whole** = throughout the whole course of study)

Item 49	1st & 2nd Y	3rd & 4th Y	5th & 6th	1st & last Y	Whole course	N	Mean	SD
S M	25.7	28.7	19.6	20.5	5.5	731	2.51	1.227
E T	30.35	30.35	8.93	28.58	1.79	56	2.41	1.221
M A	28.84	33.65	19.23	14.42	3.86	104	2.30	1.220
Item 50	**2 S**	**3 S**	**4 S**	**5 S**	**Whole**	**N**	**Mean**	**SD**
S M	27.5	50.3	12.2	5.2	4.8	731	2.09	1.014
E T	16.1	51.8	25.0	7.1	0	56	2.23	.809
M A	20.2	65.4	8.7	3.8	1.9	104	2.02	.788

Table 4.25 *When and how long should the EMP course be offered for the students of medicine in Iran? Item 49: When? Item 50: How long?*

When: The majority of the respondents were of the opinion that EMP courses should be offered in the third and fourth year. Meanwhile, a large number of respondents also opted for the first and last year, and fifth and sixth year.

How long: Regarding the length of the EMP courses, all groups believed that EMP courses should be offered for three semesters. (The current EMP courses are offered for two semesters)

Research question 9:

   9. Does the EGAP course, offered prior to EMP courses, enable students of medicine in Iran to efficiently embark on their EPM courses?

   Table 4.26 summarizes the analysis of item 51 in the questionnaires which is related to research question 9. Note the following:

➢ Scale :(1.**VSE** = to a very small extent; 2.**SE** = to a small extent; 3.**S** = somewhat; 4.**GE** = to a great extent; 5.**VGE** = to a very great extent)
➢ EGAP = English for General Academic Purposes

Item 51	VSE	SE	S	GE	VGE	N	Mean	SD	EGAP efficiency
S M	14.1	54.4	28.0	2.6	.8	731	2.22	.744	Small extent
E T	16.1	64.3	19.6	0	0	56	2.04	.602	Small extent
M A	20.2	76.0	1.9	1.9	0	104	1.86	.529	Small extent

Table 4.26 Item 51: Does the EGAP course, offered prior to EMP courses, enable students of medicine in Iran to efficiently embark on their EPM courses?

Research question 10:

   10. Are the present EMP coursebooks based on a careful analysis of students' needs?

   Table 4.27 summarizes the analysis of item 52 in the questionnaires which is related to research question 10.

Item 52	VSE	SE	S	GE	VGE	N	Mean	SD	Needs based
S M	17.1	53.4	21.3	6.3	1.9	731	2.23	.871	Small extent
E T	85.7	10.7	3.6	0	0	56	1.18	.471	Very small extent
M A	18.3	75.0	6.7	0	0	104	1.88	.489	Small extent

Table 4.27 Item 52: Are the present EMP course books based on a careful analysis of students' needs?

Research question 11:

11. Do the present EMP coursebooks familiarize students of medicine in Iran with the lexis and genre typical of their field? (only in EFL teachers' questionnaire)

Table 4.28 summarizes the analysis of item 53 in EFL teachers' questionnaire which is related to research question 11.

Item 53	VSE	SE	S	GE	VGE	N	Mean	SD	Lexis and genre familiarization
E T	8.9	42.9	44.6	3.6	0	56	2.43	.710	Small extent

Table 4.28 Item 53: Do the present EMP coursebooks familiarize students of medicine in Iran with the lexis and genre typical of their field?

Research question 12:

12. Considering the course aim and syllabus requirements, are all four skills adequately covered in the present EMP coursebooks? (only in EFL teachers' questionnaire)

Table 4.29 summarizes the analysis of item 54 in EFL teachers' questionnaire which is related to research question 12.

Item 54 EFL T	VSE	SE	S	GE	VGE	N	Mean	SD	Coverage of four skills
E T	37.5	62.5	0	0	0	56	1.63	.489	Small extent

Table 4.29 Item 54: Considering the course aim and syllabus requirements, are all four skills adequately covered in the present EMP coursebooks?

Research question 13:

13. Do the present EMP coursebooks include advice/help on study skills and learning

strategies? (only in EFL teachers' questionnaire)

Table 4.30 summarizes the analysis of items 55 and 58 in EFL teachers' questionnaire

which is related to research question 13.

Item 55: Do the present EMP coursebooks include advice/help on study skills and learning strategies?

Item 58: Do the present EMP coursebooks contain tasks and activities to improve academic skills of interpreting and transforming information from diagrams, tables, pictures, charts, etc. to language (spoken or written) and vice versa?

Item 55 EFL T	VSE	SE	S	GE	VGE	N	Mean	SD	Study skills & learning strategies
E T	33.9	53.6	12.5	0	0	56	1.79	.653	Small extent
Item 58 EFL T	VSE	SE	S	GE	VGE	N	Mean	SD	Academic skills of transforming …
E T	53.6	42.9	3.6	0	0	56	1.50	.572	Very small extent

Table 4.30 *Items 55 & 58*

Research question 14:

14. Do the present EMP coursebooks follow a multi-syllabus approach? (only in EFL

teachers' questionnaire)

Table 4.31 summarizes the analysis of items 56 and 57 in EFL teachers' questionnaire

which is related to research question 14.

Item 56: 56. Do the present EMP coursebooks contain tasks and activities that require linguistic preparedness (for the bottom-up processing) as well as conceptual preparedness (for top-down processing)?

Item 57: Do the present EMP coursebooks follow a multi-syllabus approach?

Item 56 EFL T	VSE	SE	S	GE	VGE	N	Mean	SD	Bottom-up & top-down processing
E T	26.8	42.9	26.8	3.6	0	56	2.07	.828	Small extent
Item 57 EFL T	VSE	SE	S	GE	VGE	N	Mean	SD	Multi-syllabus approach
E T	39.3	42.9	17.9	0	0	56	1.79	.731	Small extent

Table 4.31 *Items 55 & 58*

Research question 15:

15. Are the present EMP coursebooks appealing to students of medicine in Iran in terms

of content and subject matter? (only in students' questionnaire)

Table 4.32 summarizes the analysis of item 53 in medical students' questionnaire which

is related to research question 15.

Item 53 SM	VSE	SE	S	GE	VGE	N	Mean	SD	Are the EMP books appealing?
SM	27.5	59.5	9.7	2.6	.7	731	1.89	.729	To a small extent

Table 4.32 Item 53: Are the present EMP coursebooks appealing to students of medicine
in Iran in terms of content and subject matter?

Research question 16:

16. Are other materials such as medical reports and articles, films, etc. introduced and

practiced along with the main coursebooks? Are such materials required?

Table 4.33 summarizes the analysis of items 55 and 56 in medical students'

questionnaire which is related to research question 16.

Item 55 SM	VSE	SE	S	GE	VGE	N	Mean	SD	Are other materials introduced?
SM	27.1	32.8	28.5	6.8	4.8	731	2.29	1.085	To a small extent
Item 56 SM	VSE	SE	S	GE	VGE	N	Mean	SD	Are other materials required?
SM	.3	2.6	48.0	40.2	8.9	731	3.55	.703	To a great extent

Table 4.33 Item 55:Are other materials such as medical reports and articles, films, etc.
introduced and practiced along with the main coursebooks? Item 56: Are such materials
required?

Research question 17:

17. Are medical academics and professionals satisfied with the academic English abilities

of students of medicine? (only in medical academics and professionals' questionnaire)

Table 4.34 summarizes the analysis of item 53 in medical academics and professionals'
questionnaire which is related to research question 17.

Item 53 MA	VSE	SE	S	GE	VGE	N	Mean	SD	Satisfaction with students' academic English abilities
MA	4.8	62.5	29.8	2.9	0	104	2.31	.609	To a small extent

Table 4.34 *Item 53: Are you satisfied with your students' academic English abilities?*

Research question 18:

18. Are students of medicine expected to have satisfactory English skills by their subject
teachers? (the issue of transfer climate) (only in medical academics and professionals'
questionnaire)

Table 4.35 summarizes the analysis of items 54, 55 and 56 in medical academics and
professionals' questionnaire which is related to research question 18. Note the following:

➤ Scale :(1. **N** = Never; 2. **R** = Rarely; 3. **S** = Sometimes; 4. **O** =Often; 5. **VO** = Very Often)
➤ Scale: 1. (Less than 20 %, 5. 90-100 %)

Item 54 MA	N %	R %	S %	O %	VO %	N	Mean	SD	Are students expected to have satisfactory English skills?
MA	2.9	36.9	34.6	24.0	1.9	104	2.86	.886	Sometimes
Item 55 MA	N %	R %	S %	O %	VO %	N	Mean	SD	Are projects in English required?
MA	2.9	36.5	39.4	20.2	1.0	104	2.80	.829	Sometimes
Item 56 MA	Less than 20 %	20-39 %	40-69 %	70-89 %	90-100 %	N	Mean	SD	Percentage of required textbooks in English
MA	55.8	39.4	4.8	0	0	104	1.49	.590	Less than 20 %

Table 4.35 *Item 54: Are students expected to have satisfactory English skills? Item 55: Do you ask your students to write reports and research papers in English? Item 56: What percentage of the required textbooks is in English?*

4.2.4. Target situation analysis

Research question 19: (items 57 – 60 in medical academics questionnaires)

19. How often do the medical academics and professionals in Iran need English for the following purposes? (A. Reading medical reports and articles; B. Writing medical articles and reports; C. Participating and presenting in seminars; D. Communicating with patients, nurses and colleagues)

Table 4.36 summarizes the analysis of item 57-60 in medical academics and professionals' questionnaire which is related to research question 19. Note the following:

➢ Scale :(1. **N** = Never; 2. **R** = Rarely; 3. **S** = Sometimes; 4. **O** =Often; 5. **VO** = Very Often)
➢ Item 57: Reading medical reports and articles;
➢ Item 58: Writing medical articles and reports;
➢ Item 59: Participating and presenting in seminars;
➢ Item 60: Communicating with patients, nurses and colleagues.

	N %	R %	S %	O %	V O %	N	Mean	SD	How often
Item 57	0	0	0	20.2	79.8	104	4.80	.403	Very often
Item 58	0	0	23.1	35.6	41.3	104	4.18	.785	Often
Item 59	0	10.6	62.5	16.3	10.6	104	3.27	.791	Sometimes
Item 60	4.8	60.6	27.9	6.7	0	104	2.37	.683	Rarely

Table 4.36 *What and how often do medical academics and professionals need English for?*

4.3. Findings of the needs analysis based on the questionnaires

4.3.1. Skills Research questions 1-3 (items 1-16)

1. In the present courses of English for Medical Purposes (EMP), how often are the students of medicine in Iran **expected to use** the skills of speaking, listening, writing, and reading? And how often do they **have difficulty** with each of these skills?

As relates to the inclusion of skills in EMP coursebooks, all three groups (students of medicine, EFL instructors, medical academics and professionals) reported that reading was the dominant skill in Iranian medical students' EMP courses. Other skills – listening, speaking and writing – were rarely expected to be encountered. Meanwhile, students' problems with regard to listening, speaking and writing were more serious than reading.

2. How **important to success in Iranian medical students' course of study** are the abilities of speaking English, listening to English, writing English, and reading English?

3. How **important to success in Iranian medical students' field after graduation** are the abilities of speaking English, listening to English, writing English, and reading English?

All three groups considered the abilities of listening to English and speaking English of low importance to success in students' course of study. However, they were considered of moderate importance for success in their field after graduation.

The ability of writing English was also considered of low importance to success in students' course of study by all three groups. Regarding the importance of the ability of writing to success in students' field after graduation, students perceived it of moderate

importance while EFL instructors and medical academics and professionals considered it of high importance.

Reading was considered of high importance to success both in students' course of study and field after graduation by all three groups.

4.3.2. Academic skills Research questions 4-7 (items 17-48)

Academic speaking skills

4. How **important** are the following *academic speaking skills* for Iranian students of medicine and how often do they **have problems** with them? (Having accurate pronunciation; Seminar presentation skills; Conversational exchange with patients, nurses, colleagues, etc.; Transferring information from diagrams, pictures, etc. to spoken English)

Students of medicine believed that **having accurate pronunciation** was of moderate importance, while EFL instructors and medical academics considered it of high importance. All three groups indicated that medical students often have problem in having accurate pronunciation.

There was a common view regarding the importance of **seminar presentation skills** and students' problems. All groups considered the skill of high importance and believed that students often have problems regarding seminar presentation skills.

Conversational exchanges with patients, nurses, colleagues, etc. was considered of moderate importance by students and of high importance by EFL instructors and medical academics. Students believed that they sometimes had problems with the skill, while EFL instructors and medical academics indicated that students often had problems with the skill.

Transforming information from diagrams, tables, pictures, etc. to spoken English was considered of moderate importance by students and of high importance by EFL

instructors and medical professionals. Meanwhile, all groups indicated that students often had problems with the skill.

Academic listening skills

5. How **important** are the following *academic listening skills* for Iranian students of medicine and how often do they **have problems** with them? (Listening to medical news; Taking effective notes; Understanding lectures and presentations; Listening to educational medical films)

All three groups considered **listening to medical news** of moderate importance and believed that students often had problems with the skill.

All three groups believed that **taking effective notes** and **understanding lectures and presentations** were of high importance. They also indicated that students often had problems with the skills.

Listening to educational medical films was considered of moderate importance by students and of high importance by EFL instructors and medical academics. All groups indicated that students often had problems with the skill.

Academic writing skills

6. How **important** are the following *academic writing skills* for Iranian students of medicine and how often do they **have problems** with them? (Overall writing ability – using appropriate vocabulary, organization, etc.; Writing medical reports; Writing articles for medical journals; Transferring information from diagrams, tables, pictures, etc. to written English)

All groups indicated that **overall writing ability** was of high importance. They also believed that students often had problems with the skill.

Writing medical case reports was considered of moderate importance by students and of high importance by EFL instructors and medical academics. All groups believed that students often had problems with the skill.

Writing articles for medical journals was considered of high importance by all groups. Students indicated that they often had problems with the skill and EFL teachers and medical academics believed that students very often had problems.

Transforming information from diagrams, tables, etc. to written English was considered of moderate importance by students and of high importance by EFL instructors and medical academics. Students indicated they sometimes had problems with the skill while EFL instructors and medical academics were of the opinion that students often had problems with the skill.

Academic reading skills

7. How **important** are the following *academic reading skills* for Iranian students of medicine and how often do they **have problems** with them? (Reading medical textbooks; Reading medical articles and reports; Reading English newspapers and magazines; Reading and interpreting the visuals such as pictures, tables, diagrams, charts, etc.)

Students of medicine believed that the skill of **reading medical textbooks** was of high importance and EFL instructors and medical academics considered it of very high importance. Meanwhile, while students believed they sometimes had problems with the skill, EFL instructors and medical academics indicated that students often had problems with the skill.

All groups considered **reading medical articles and reports** of high importance. They also indicated that students often had problems with the skill.

All groups believed **reading English newspapers and magazines** was of moderate importance. Students and medical academics indicated that students sometimes had problems with the skill while EFL instructors believed students often had problems with the skill.

Although students and medical academics considered **reading and interpreting the visuals such as pictures, diagrams, tables, etc.** of moderate importance, EFL instructors considered it of high importance. Students and EFL instructors believed students sometimes had problems with the skill while medical academics believed students often had problems.

4.3.3. Methodology and syllabus

8. When and how long should the EMP courses be offered for the students of medicine in Iran? (items 49 – 50 common to all groups)

There was divergence of opinions within and among respondents, some opting for the 1st and 2nd year, some for the 3rd and 4th year, some for the 5th and 6th year and finally for the 1st and last year. Few of the respondents opted for the whole course of study. The majority of the respondents in all three groups were of the opinion that EMP courses should be offered in the third and fourth year.

Regarding the length of the EMP courses, a large majority of respondents in all groups believed that EMP courses should be offered for three semesters. (the current EMP courses are offered for two semesters)

9. Does the EGAP course, offered prior to EMP courses, enable students of medicine in Iran to efficiently embark on their EPM courses? (item 51 common to all groups)

All three groups were of the opinion that the EGAP course was inefficient and did not enable students of medicine in Iran to efficiently embark on their EMP courses.

10. Are the present EMP coursebooks based on a careful analysis of students' needs? (item 52 common to all groups)

A large majority of respondents in all groups indicated that the present EMP coursebooks did not satisfy the academic and professional needs of students of medicine.

11. Do the present EMP coursebooks familiarize students of medicine in Iran with the lexis and genre typical of their field? (item 53 only in EFL instructors' questionnaire)

EFL instructors believed that the present EMP coursebooks were not satisfactory in terms of familiarizing students of medicine with the lexis and genre typical of their field.

12. Considering the course aim and syllabus requirements, are all four skills adequately covered in the present EMP coursebooks? (item 54 only in EFL instructors' questionnaire)

According to EFL instructors, considering the course aim and syllabus requirements, all four skills are not adequately covered in the present EMP coursebooks.

13. Do the present EMP coursebooks include advice/help on study skills and learning strategies? (items 55 & 58 only in EFL instructors' questionnaire)

EFL instructors indicated that the present EMP coursebooks in Iran did not contain any advice/help on study skills or academic skills of interpreting and transforming information from diagrams, tables, pictures, charts, etc. to language (spoken or written) and vice versa.

14. Do the present EMP coursebooks follow a multi-syllabus approach? (items 56 & 57 only in EFL instructors' questionnaire)

According to EFL instructors, the present EMP coursebooks in Iran do not follow a multi-syllabus approach.

15. Are the present EMP coursebooks appealing to students of medicine in Iran in terms of content and subject matter? (item 57 only in students' questionnaire)

The present EMP coursebooks in Iran are not appealing for students of medicine in terms of content and subject matter.

16. Are other materials such as medical reports and articles, films, etc. introduced and practiced along with the main coursebooks? Are such materials required? (items 55 & 56 only in students' questionnaire)

The majority of students of medicine in this study indicated that other materials such as medical reports and articles, films, etc. were introduced and practiced to a small extent along with the main coursebooks. Moreover, they believed that such materials were required.

17. Are medical academics and professionals satisfied with the academic English abilities of students of medicine? (only in medical academics' questionnaires)

The majority of medical academics in this study were not satisfied with the academic English abilities of students of medicine.

18. Are students of medicine expected to have satisfactory English skills by their subject teachers? (items 54, 55, & 56 in medical academics questionnaires)

Medical academics in this study indicated that they sometimes expected their students to have satisfactory English skills. They sometimes required students to write reports and research papers in English. They also indicated that less than 20% of the required English coursebooks were in English.

4.3.4. Target situation analysis

19. How often do the medical academics and professionals in Iran need English for the following purposes? (A. Reading medical reports and articles; B. Writing medical articles and reports; C. Participating and presenting in seminars; D. Communicating with patients, nurses and colleagues) (Items 57 – 60 in medical academics' questionnaires)

Medical academics and professionals in Iran very often need English **to read medical reports and articles**. They often need English **to write medical articles and reports**. They sometimes need English **to participate and present in seminars**. And they rarely need English **to communicate with patients, nurses and colleagues**.

4.4. Discussion of findings based on interviews, the questionnaires, review of the related literature and analysis of the current EMP coursebooks

The process of collecting data from several sources using different methods (i.e. triangulation) provides a fuller understanding of the phenomenon. Triangulation, as Glesne and Peshkin (1992:24) put, contributes to the trustworthiness of the data and increases confidence in research findings. The following is a discussion of findings based on interviews, the questionnaires (including open-ended additional comments), review of the related literature and analysis of the current EMP coursebooks. For convenience, the findings are divided under some headings pertaining to learner and setting factors. Along with discussions some suggestions are put forward.

4.4.1. The absence of national curriculum in Iran and lack of consistency

ESP in Iran is undergoing changes, however, it is lagging behind the improvements made in the field. The absence of national curriculum in Iran results in lack of consistency in ESP

syllabuses for university students in terms of structure and content. The reason for the gap between the target situation needs and the existing proficiency of the learners is the absence of research based, localized course design based on needs analysis which in turn leads to the absence of generally accepted criteria in content, methodology, course organization, assessment, and learning outcomes with reference to international standards.

Based on what was revealed by the study, the EMP courses in Iranian universities are conducted without consultation with the content departments, and without having assessed students' learning needs which is the indispensible first step in curriculum development for academic or specific academic purposes. As has been echoed in the literature, ESP courses are not designed and/or implemented consistently in terms of syllabus, materials, methodology, and expected English proficiency level on entry.

4.4.2. EMP coursebooks in Iran

Understandably, EMP coursebooks are not satisfactory as they are not based on a thorough analysis of the students' needs. The following is a list of some major problems based on the review of the research on ESP/EAP/EMP and the analysis of the current EMP coursebooks in Iran:

- ➢ The coursebooks developed for the students of medicine in Iran are not based on an efficient needs analysis of students' present situation, learning situation, and target situation.

- ➢ There is a gap between theoretical rationale on which EAP in Iran is founded and what is actually 'materialized' as EAP textbooks.

- ➢ The EMP coursebooks are inefficient:

1. the content of the coursebooks are not designed to address the learning needs, wants and desires of Iranian students;

2. the coursebooks have a rigid format and are not appealing to students in terms of content and subject matter;

3. the articles are selected mainly on the basis of topic, as being related to the students' field of study, and not on the basis of genre or discourse of the particular discipline;

4. the present EMP coursebooks do not familiarize students of medicine with the lexis and genre typical of their field;

5. there is absence of pluralism in task design and low face validity necessary for learner-centred educational settings;

6. the courses are text-based and examination-oriented;

7. they do not cover the four macro-skills;

8. they lack communicative exercises;

9. they have limited choice of text types;

10. they do not develop the students' level of proficiency enough to use English in real contexts.

4.4.3. Skills

As mentioned earlier, skills of listening, speaking, and writing rarely receive fair attention and treatment in EMP coursebooks. The fact that those skills were also considered of low importance to success during the course of study also indicates the lack of transfer climate, i.e. students are rarely required to use those skills either in their EMP courses or specialist

courses. Moreover, what we test can exert an important effect on the teaching and learning activities (washback effect). Therefore, in order to bring about changes in teaching, changes may have to be made in the tests.

This calls for a radical change in the language curriculum and the classroom syllabus in terms of a shift towards integrative language teaching methodology. That is the variety of materials through different mediums would be more useful than the focus on one of the skills (i.e. reading) for language learning in general, and in ESP development in particular.

4.4.4. Academic skill

Iranian students of medicine, EFL instructors, and medical academics and professionals indicated that the following academic skills were of high importance and that students of medicine often have problems with them:

Academic reading skills	Academic listening skills
1. Reading medical textbooks 2. Reading medical articles and reports 3. Reading and interpreting the visuals such as pictures, tables, diagrams, charts, etc.	1. Taking effective notes 2. Understanding lectures and presentations 3. Listening to educational medical films
Academic writing skills	Academic speaking skills
1.Overall writing ability 2. Writing medical reports 3. Writing articles for medical journals 4. Transferring information from diagrams, tables, pictures, etc. to written English	1. Having accurate pronunciation 2. Seminar presentation skills 3. Conversational exchange with patients, nurses, colleagues, etc. 4. Transferring information from diagrams, pictures, etc. to spoken English

However, almost none of the above mentioned skills have been addressed and treated in EMP coursebooks in Iran. The situation is a paradoxical one. On the one hand, there is growing appreciation that ESP/EMP material development needs to be localized, addressing

students' needs and academic requirements. On the other hand, this is not translated into decisive action. It goes without saying that such coursebooks will fail in bridging the gap between the target situation needs and the existing proficiency of the learners.

Even the reading skill, as the dominant skill addressed in Iranian EMP coursebooks, does not enjoy a sound and solid rationale and methodology. It is considered as a self-sufficient achievement and not as an aspect of communicative competence. The assumption is that once linguistic skills are acquired in reasonable measures, the communicative abilities will follow as a more or less automatic consequence. "What evidence we have, however, suggests that this is not the case: the acquisition of linguistic skills does not seem to guarantee the consequent acquisition of communicative abilities in a language" (Widdowson 1978:67).

Iranian course designers need to address the following question put forward by Widdowson (1978:67) more than thirty years ago: "How can the skills be taught, not as a self-sufficient achievement but as an aspect of communicative competence? How can skills be related to abilities, usage to use?"

4.4.5. Students' level of proficiency in English

Students' level of proficiency in English is an important consideration. It can affect our decisions regarding the content, the type of tasks and activities, ordering, and how much weighting we give to form or function (see proportional syllabus in the review of literature, chapter 2).

The Iranian medical academics and professionals indicated their dissatisfaction with the academic English abilities of students of medicine. After passing their English courses, students of medicine still lack the ability to use grammatical structures and medical

terminology appropriately because they have only memorized the limited amount of technical and semi-technical vocabulary in order to succeed in their examinations. Therefore, they have problems using semi-technical vocabulary in real contexts.

In Iran, students take a general English course prior to ESP courses but the course is so short and inefficient. One of the major issues, Iranian ELT teachers at tertiary level complain about, is that students' level of proficiency is very low and inefficient for the academic requirements. So, after a while they find out that their class and teaching is devoted for compensating for the shortcomings of ELT at secondary education.

4.4.6. Immediate or delayed needs and students' motivation

In contrast to ESL contexts such as India where students have immediate needs, Iranian students have delayed needs for English in their academic contexts (see Dudley-Evans & St. John 1988:40&148 for a discussion of immediate and delayed needs). Meanwhile, in some advanced level and high ranking universities students' needs may fall on the continuum between these two points. Students' motivation and attitude to the learning of English need to be taken into consideration in any language planning and course design. High motivation on the part of learners generally enables more subject specific work to be undertaken; low motivation, however, is likely to lead to a concentration on less specific work. As Dudley-Evans and St. John (1998:172) observe: "To stimulate and motivate, materials need to be challenging yet achievable; to offer new ideas and information whilst being grounded in the learners' experience and knowledge; to encourage fun and creativity. The input must contain concepts and/ or knowledge that are familiar but it must also offer something new, a reason to communicate, to get involved. The exploitation needs to match how the input would be used

outside the learning situation and take account of language learning needs. The purpose and the connection to the learners' reality need to be clear."

4.4.7. EFL context

In EFL context, the lower level of exposure to English hinders students' L2 proficiency. Tertiary students in Iran are not equipped with the required linguistic and communicative abilities to embark upon specialized English. As Dudley-Evans and St. John (1998:171) put: "In some situations, where English is a foreign not a second language, the ESP classroom may be almost the only source of English. Materials then play a crucial role in exposing learners to the language, which implies that the materials need to present real language, as it is used, and the full range that learners require".

4.4.8. Management and administration

Holliday (1994:4) distinguishes between BANA (British, Australian, and North American) context in which there has been considerable freedom to develop classroom methodology as a sophisticated instrument to suit the precise needs of language learners, and TESEP (Tertiary, Secondary, and Primary English Language education in the rest of the world). In TESEP context teaching of English is part of a general curriculum and as such serves the policies and goals of a wider education system. Thus the teaching facilities, hours of instruction, and the class size are affected by the entire education system. "Even the teaching style of the English language teachers is, to some extent, constrained according to the teaching style of peer teachers in other subjects (Salahshoor 2000). Moreover, almost all ELT theory, training and methodology come from the so-called BANA countries and ESL reasoning and methodologies from English-speaking countries are often not applicable to many EFL

situations. Teachers in Iran complain about the restrictions imposed by policies and goals of a wider education system and a general curriculum. Over-centralization of educational policies and practices and the endemic inflexibility of system not only stifle innovation but also, as Sheorey (2006:20) puts, create a flow-with-the-current, passivistic resignation among resourceful and well-motivated teachers.

4.4.9. The timing and length of the course

Regarding the timing of EMP courses (when should the EMP courses be offered to the students of medicine in Iran?), there was divergence of opinions within and among respondents, some opting for the 1st and 2nd year, some for the 3rd and 4th year, some for the 5th and 6th year and finally for the 1st and last year. Few of the respondents opted for the whole course of study. For details refer to table 4.25. The discrepancies among the respondents can be explained on the ground that presenting EMP courses in each of the options in the questionnaire is justifiable. This is in line with what has been echoed in the literature. In most ESL/ EFL contexts, including Iran, English is often taught in the first year of the academic course. Dudley-Evans and St. John (1998:40) believe there is a case for delayed or additional teaching of English in the final years. They (ibid.) also refer to delayed needs as those that arise either in the final year (e.g. project work) or to communication needs in the future. While teachers on training courses readily accept this idea, very few (if any) reports exist in the EAP literature of experiments on the timing of the English course (ibid.). Swales (1984, cited in Dudley-Evans and St. John 1998:41) points to a loss of confidence in English Language Centers that concentrate exclusively on first year support work and suggests the

expansion of their role to the teaching of 'research English' to postgraduates and young academic staff.

In India, for example, the immediate need for knowledge of academic and specific English requires giving more priority to pre-study and in-study EAP/ESP courses compared to Iran. In both countries there is a case for delayed or additional EAP/ESP courses in the final years. In the final years, students more readily appreciate the value of academic skills such as project work, paper writing and presentation, case report, etc. thanks to their good command of the conceptual issues in their respective fields and the requirements of their profession. This, in turn, helps them benefit more from the delayed instruction.

Regarding the length of the course there was a convergence in opinions with most of the respondents suggesting that EMP courses should be offered for three semesters (the current EMP courses are offered for two semesters). Time availability and the length of the course determine whether the course is going to be intensive or extensive. The content, tasks and activities, scope and sequence of the course are also mainly affected by time and length factors. Scope, according to Richards (2001:149), is concerned with the breadth and depth of coverage of items in the course. If more importance and time is given to EAP/ESP education, course designers will have much better perspectives on the content specification, sequencing, and breadth and depth of coverage of items in the course. This, also, allows course designers much room for maneuver.

In Iran, ELT/EAP/ESP courses are very short and limited with regard to an EFL context. Figure 1.1 (chapter one) illustrates the English courses presented to students of medicine in Iran. ESP course design in Iran is greatly constrained by the time and length of the course limitations and is a challenge for course designers. They need to take this limitation into

consideration along with the fact that the context of Iran is an EFL context and that the language of instruction is not English. The course also needs to compensate for students' low English proficiency (that was elaborated earlier) along with their academic and specific English requirements.

4.4.10. The efficiency of EGAP course

All three groups in this study were of the opinion that the English for General Academic Purposes course was inefficient and did not enable students of medicine in Iran to efficiently embark on their EMP courses. EGAP course can play an important role in preparing students to efficiently embark on EMP courses. Successful English language performance on the part of students requires a balanced interaction between top-down and bottom-up processing skills. The necessary balance requires the linguistic preparedness (for bottom-up processing) and conceptual preparedness (for top-down processing). These factors should be taken into consideration in designing such courses. The course should bridge the gap between students' level at secondary education and the requirements for academic English at tertiary education.

4.4.11. Study skills and learning strategies

All three groups in this study indicated that the EMP coursebooks rarely included any advice or help on study skills and learning strategies. They unanimously referred to the absence of tasks and activities to improve academic skills of interpreting and transforming information from diagrams, charts, tables, pictures, etc. to language (spoken or written) and vice versa. Moreover, Iranian EFL instructors indicated that the EMP courses in Iran do not follow a multi-syllabus approach.

The primary concern of any educator should be enhancement of the students' ability to take charge of their own learning, to bring the students to the point where they can begin taking the advantage of using the natural input available to them. One of the more widely accepted definitions of learner autonomy is "the capacity to take control of one's own learning" (Benson 2001:47). Nunan (1988b:20) observes: "Apart from philosophical reasons for weaning learners from dependence on teachers and educational systems, it is felt, particularly in systems where there are insufficient resources to provide a complete education, that learners should be taught independent learning skills so that they may continue their education after the completion of formal instruction."

Extensive investigation has shown the importance of language learning strategies in making language learning more efficient and in producing a positive effect on learners' language use (Oxford 1990 & 1996; Chamot and O'Malley 1994; Cohen 1998). With that in mind, the development of effective means of accommodating both language learning strategies instruction and actual language use is an increasingly important focus of research and inquiry.

The concept of "learning strategies" is based in part on cognitive learning theory, in which learning is seen as active, mental, learner-constructed process. A seminal definition of language learning strategies was developed by Rebecca Oxford (1990), and is described as specific, self-directed steps taken by learners to enhance their own learning. The most comprehensive language learning strategy scheme, the Strategy Inventory for Language Learning (SILL), developed by Oxford, separates strategies into two strategy orientations and six strategy groups: (1) a direct learning orientation, consisting of (a) memory, (b) cognitive,

(c) linguistic deficiency compensation strategy groups and (2) an indirect learning orientation, consisting of (a) metacognitive, (b) affective, and (c) social strategy groups.

The following is a short selection of various study skills and learning strategies that can be included in EMP coursebooks:

➢ identifying the lexical and grammatical connections between different elements of a text (cohesion)

➢ identifying the logical sequence of ideas within a text using subject matter knowledge, personal experience, etc. (coherence). Practice on these two aspects, i.e. cohesion and coherence contributes to the organizational competence elaborated by Bachman (1990:87)

➢ identifying cause/effect, comparison/contrast, and addition/listing patterns by paying attention to transitional words/phrases

➢ using the dictionary efficiently

➢ adjusting reading speed according to the type of material being read

➢ guessing word meanings from context

➢ interpreting graphs, diagrams and symbols

➢ note taking and summarizing

➢ using advance organizers and enabling activities as a preparation for a task

➢ paper writing, case report writing, project work and presentation skills

➢ seminar presentation skills

➢ conversational and communication skills at workplace

➢ improving visual literacy (refer to multimodality, chapter 2)

Regarding multimodal discourse, there are also some implications for material development in general and for methodology and task design in particular. A variety of good tasks can be designed using visuals. They can make the task more meaningful and purposeful.

Multimodal representations, as Hyland (2006:252) observes, are most obvious in academic discourse and in the *sciences*, where visuals do more than merely illustrate or supplement information, and where learning to read them is a part of learning scientific discourse. Myers (1997) suggests that teachers and students should ask three questions about visuals:

1. *Why is the visual there?* Examine the captions and the in-text reference and ask what they direct us to do with the picture. Is it a gloss, an interpretation or a background statement?

2. *How does the picture refer?* Photographs, cartoons, maps, portraits, diagrams, graphs, etc., work in different ways, and awareness of this can encourage reflection on their assumed naturalness and the ways symbols are created and used in the discipline.

3. *How real is it?*

Kress and Van Leeuwen (1996) encourage their students to consider:

➢ Which aspects of the argument are included in the visual and which omitted and why?
➢ What connections are drawn between the visual and the text?
➢ What is the relationship between the gloss of the visual and the visual itself?
➢ What are the connections between the visuals and their positioning on the page?

4.4.12. Supplementary materials

The majority of students of medicine in this study indicated that other materials such as medical reports and articles, films, etc. were introduced and practiced to a small extent along with the main coursebooks. Moreover, they believed that such materials were required. Supplementary materials such as medical reports and articles, medical films, etc. are samples

of authentic language use and contribute to students' motivation and create a climate of transfer.

4.4.13. Transfer climate

EAP education aims to help students develop English language skills that they will utilize in their other academic courses. This goal, as James (2010) observes, involves *learning transfer*, the process by which "learning in one context or with one set of materials impacts on performance in another context or with another set of materials" (Perkins & Salomon 1994, cited in James 2010).

One way light might be shed on learning transfer in EAP settings is through a *transfer climate* lens. Transfer climate is a term originating in research on learning transfer in workplace training settings. This term refers to the support for learning transfer that an individual perceives in the target context of instruction (Burke & Baldwin 1999). In an EAP setting, transfer climate can be viewed as learners' perceptions of characteristics of their mainstream academic courses that may facilitate or inhibit the application of learning outcomes from an EAP course. The nature of the target context of instruction is believed to play a critical role in learning transfer (Marini and Genereux, 1995), and a supportive transfer climate in such target contexts has been linked to learning transfer.

Unfortunately, the transfer climate in Iran is not so favorable for students of medicine. Medical academics and professionals in this study indicated that they sometimes expected their students to have satisfactory English skills, they sometimes required students to write reports and research papers in English. They also indicated that less than 20% of the required English course books were in English.

The positive or negative answer to the following questions can be indicative of a favourable or adverse transfer climate respectively:

➢ Do students have to do any kind of English work (written or spoken) in any other courses besides EMP courses?

➢ Do medical academics expect students to have satisfactory English skills?

➢ Do they provide feedback on students' academic English performance?

➢ Do they have positive attitudes toward EAP courses?

➢ Do they use the same kind of skills students have been learning and practicing in EAP classes?

➢ Do students think using skill they learn and practice in EAP courses can help them get higher grades?

➢ Do students think using skill they learn and practice in EAP courses can help them work faster in other courses?

Unfortunately the answer to most of the above mentioned questions is negative in the context of Iran. This makes the task of course design more challenging. The courses need to compensate for the lack of transfer climate by including tasks that enhance students' engagement and involvement. Deep-end strategies (refer to review of literature, chapter two) and assigning project works, for example, are affective ways of creating a favourable transfer climate.

4.5. Concluding remarks

EMP courses in Iran still lack a theoretical or research rationale and textbooks too often continue to depend on the writer's experience and intuition rather than on systematic research. ESP/EAP community in Iran cannot neglect the importance of innovations in developing EAP courses which are based on current pedagogic approaches such as consciousness raising, genre analysis and linked EAP-content modules (Benesch 2001; Johns 1997; Swales and Feak

2000). These have had considerable success, but teachers are aware that a *one-size-fits-all* approach is vulnerable to the demands of specific teaching contexts and the needs of particular learners. While medical students around the world may share some similar language needs, how they learn the language, the condition in which they are learning and where and how they apply the language are not the same. Therefore, their needs, and how they are prioritised, ordered, and then met will be different. This requires substantial pedagogic and curricular creativity in local contexts in EAP.

The field of EAP has opened new horizons for researchers both in theory development and innovative practice. These findings need to be translated into decisive action by EAP practitioners in Iran. As Hyland (2006:2) observes, the communicative demands of the modern university, much like the modern workplace, involve far more than simply controlling linguistic error or polishing style. There is growing awareness that students, including native English speakers, have to take on new roles and engage with knowledge in new ways when they enter university. They find that they need to write and read unfamiliar genres and participate in novel speech events. There is now compelling evidence across the academic spectrum that disciplines present characteristic and changing forms of communication which students must learn to master in order to succeed. Further, while in the past the main vehicles of academic communication were written texts, now a broad range of modalities and presentational forms confront and challenge students' communicative competence.

EAP attempts to offer systematic, locally managed, solution-oriented approaches that address the pervasive and endemic challenges posed by academic study to a diverse student body by focusing on student needs and discipline-specific communicative skills (Hyland 2006:4). This takes practitioners beyond preparing learners for study in English to developing

new kinds of literacy: equipping students with the communicative skills to participate in particular academic and cultural contexts. EAP seeks to provide insights into the structures and meanings of academic texts, the demands placed by academic contexts on communicative behaviours, and the pedagogic practices by which these behaviours can be developed. For a detailed discussion of evolutionary movements in ESP/EAP and EAP refer to the introduction and review of literature chapters.

Chapter Five

Conclusion

&

Recommendations

Chapter Five: Conclusion & Recommendations

5.1. Introduction

This study was conducted to provide suggestions and a framework for developing EMP courses for the Iranian students of medicine. Needs analysis as the cornerstone of this study was undertaken for the following stakeholders: 1. Iranian students of medicine; 2. Iranian EFL instructors; 3. Iranian medical academics and professionals. Review of the related literature and the analysis of the current EMP coursebooks in Iran was the other source of information in this study (see figure 3.1, chapter 3).

The results of the needs analysis in this study can shed light on different aspects of the course design and provide insights for the efficient specification of purposes, content, and tasks. Figure 5.1 is a summary of the major parts of the framework for designing EMP courses in Iran. Each section of the framework is then elaborated along with detailed schematic representations.
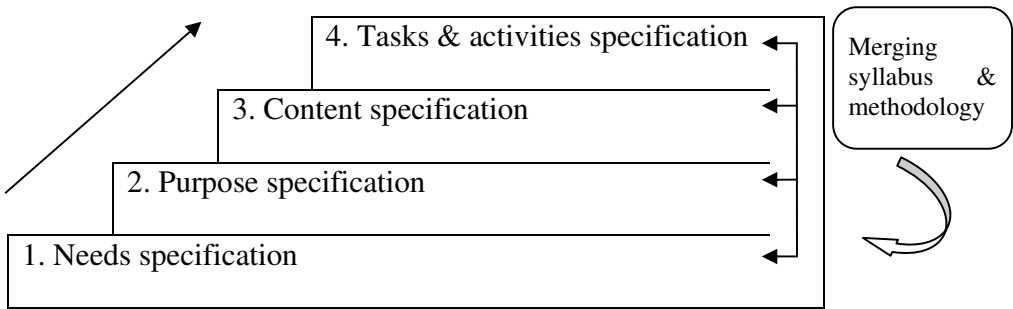
Figure 5.1: Four major steps in EMP course design

5.2. Needs specification

Figure 5.2 is a schematic representation of the first step in this study. Theoretical and practical explanations have been provided throughout this study for the needs analysis as the cornerstone of this study. The results of the needs analysis provide insights for the efficient specification of purposes, content, and tasks. (Note: TSA=Target Situation Analysis; PSA=Present Situation Analysis; LSA=Learning Situation Analysis; NA=Needs Analysis)
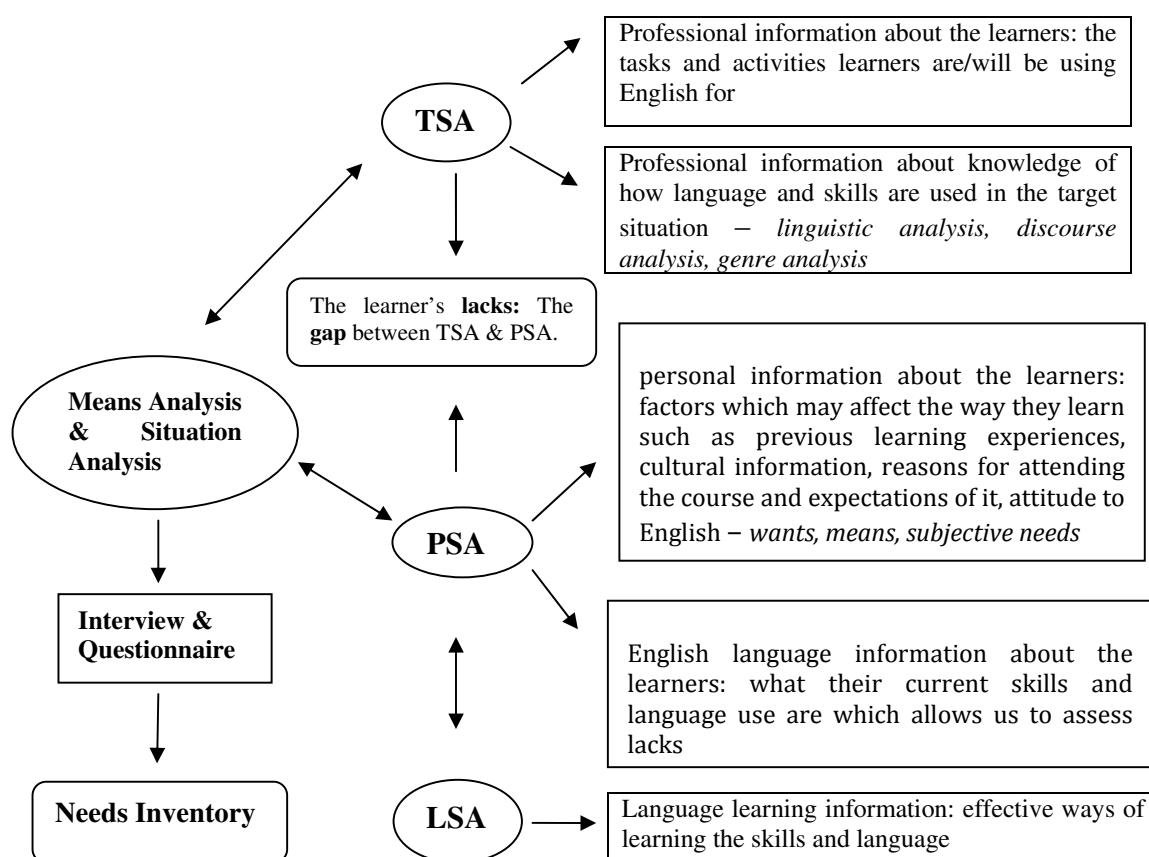
Figure 5.2: *Schematic representation of aspects and the role of NA in this study*

5.3. Purpose specification

For a detailed discussion of goals, objectives, non-language outcomes and process objectives, and their classifications refer to chapter two (2.6.1). ESP courses are often based on different combinations of objectives, with some courses giving more emphasis to some objectives than others. This may reflect the outlook of teachers, course designers, and institutions involved.

Figure 5.3 is a schematic representation of the purpose specification suggested in this study that follows needs analysis.
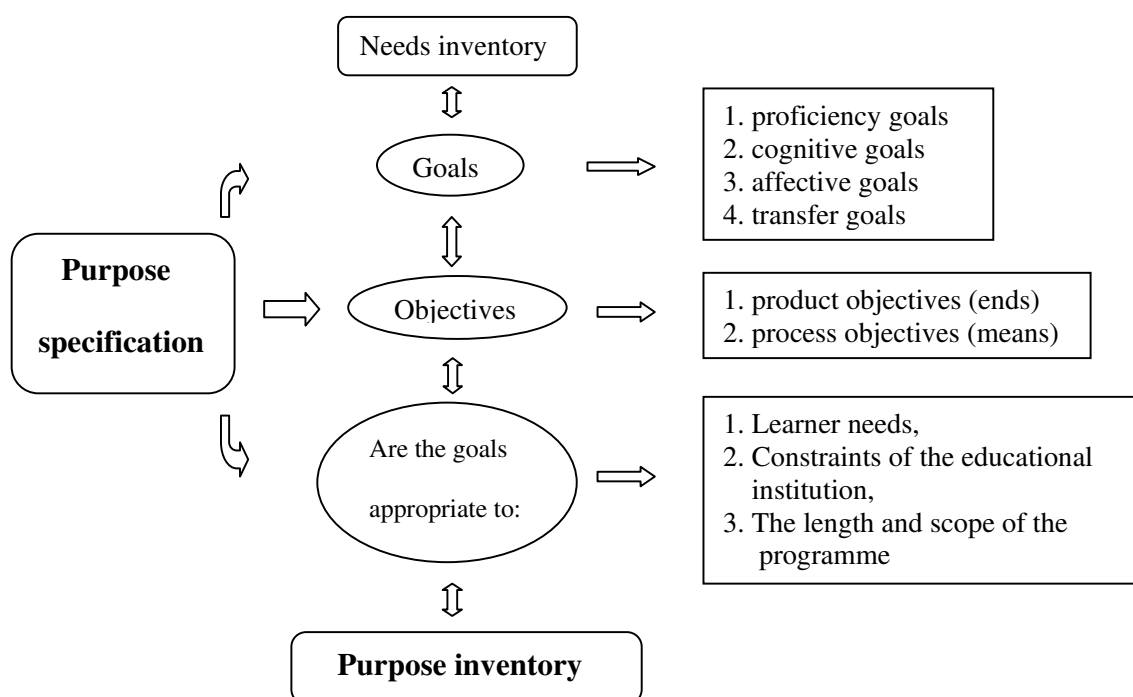
Figure 5.3: Purpose specification

Nunan (1998b:71) concludes: "The specifications of process and product objectives are not necessarily mutually exclusive. One type specifies the means, the other the ends. It could be argued that any comprehensive syllabus needs to specify both process and product objectives."

5.4. Content specification

Figure 5.4 is a schematic representation of the content specification suggested in this study based on the purpose inventories established through needs analysis.
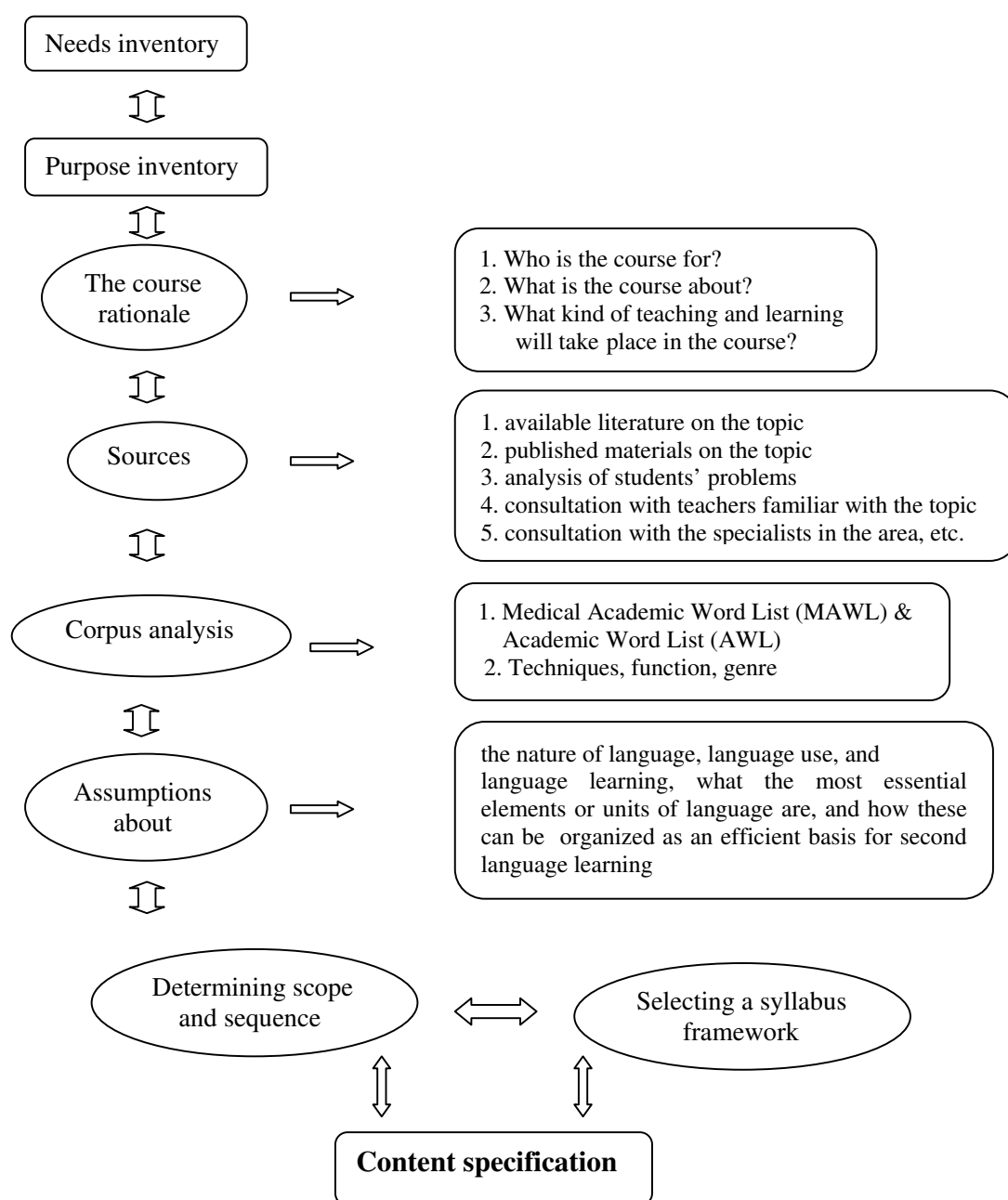
Figure 5.4: Content specification

For a detailed discussion regarding Medical Academic Word List refer to chapter two and appendix A. For more details regarding content specification refer to chapter two (2.6.2).

The obtained data from needs specification and purpose specification stages would serve as the foundation for materials to appear in the intended textbook. Designing an EAP syllabus includes determining the content, tasks and assignments which will meet the objectives established for the course. As Hyland (2006:286) notes, "Ideally this will include a balance of skills and text knowledge and a variety of topics, task types, genre and input, with discussions, talk and data gathering as input." Depending on the orientation and length of the course, it is good practice to make provision for five main kinds of knowledge and skills (Hyland, 2003):

- *Genre:* ensuring relevant genres are included and deciding how these will be introduced.
- *Context:* familiarizing learners with target contexts and the roles and relationships they imply.
- *System:* ensuring that students will acquire the elements of the language system they need to understand target genres.
- *Content:* selecting and sequencing the content domains students will learn 'through'.
- *Process:* making provision for students to develop their writing and speaking skills with different types of practice.

Iranian EFL instructors indicated that the EMP courses in Iran do not follow a multi-syllabus approach. They also mentioned that the courses do not include advice/help in study skills or learning strategies. Students of medicine in Iran indicated that the EMP courses were not appealing in terms of subject matter and content, they contained very few visual aids, and

that supplementary materials such as films, authentic subject related texts, etc. were rarely practiced in their courses. Medical academics and professional in Iran indicated that the current EMP coursebooks do not satisfy the academic and professional needs of students. The findings of this study reveal the same dissatisfaction echoed in the literature about EAP courses in general: Regarding the current state of course development, Tomlinson (2003:521) and other authors in the edition express the following reservations:

- The focus on learning language items (especially grammar items) in many materials
- The unidimensional nature many of the processes learners are asked to engage in
- The tendency to underestimate the learner both in terms of content and of task
- The triviality and blandness of the content in many commercial materials
- The lack of potential for effective engagement of many of the materials
- The lack of flexibility of many of the materials, both in terms of potential for adaptation, localization and personalization and of the provision of choice for the learner and the teacher
- The mismatch between many of the materials and what second language acquisition research has revealed about the processes of language learning and teaching
- The mismatch between many of the materials and what teachers know can promote language acquisition in the classroom

They (ibid.) feel that we can help language learners more by developing materials which:

- ✓ Have the potential for effective engagement
- ✓ Engage the learners in multidimensional processes which match what we are finding out about mental representation and durable learning
- ✓ Relate to the interest and enthusiasms of the learners
- ✓ Have been designed to facilitate adaptation, localization and personalization
- ✓ Cater for different preferred learning and teaching styles
- ✓ Prepare the learners for L1-like processes of language use rather than tie them to L2 models
- ✓ Both learners and teachers can enjoy using

At this stage, let's consider some frameworks which can be helpful in translation of theoretical rationales into a concrete model of a course syllabus systematically. One

framework which can be helpful in this regard is the Complementary Pyramid Syllabus Design (CPSD) adopted from Spector-Cohen et al. (2001) which follows a multi-syllabus approach and is based on the principles of proportional syllabus developed by Yalden (1983). Figure 5.5 illustrates this framework.

ADVANCED LEVELS
Content-specific texts

INTERMEDIATE LEVELS
General content academic texts

BEGINNING LEVELS
General content texts

TYPE B
Analytic

TYPE A
Synthetic

Procedural Knowledge

autonomous

associative

cognitive

Declarative knowledge
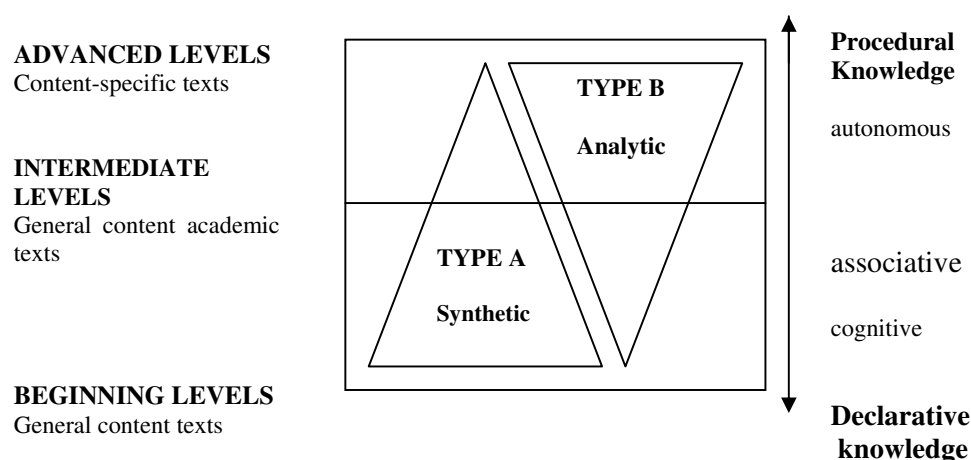
Figure 5.5: Complimentary Pyramid Syllabus Design (CPSD): A principled eclectic approach adopted from Spector-Cohen et al. (2001).

Proportional syllabus is, as a matter of fact, merging analytic and synthetic syllabus proposed by Wilkins (1976) and later modified by White (1988) in the name of Type A and Type B syllabus. If one advocates including Type B elements in syllabus, as it is the case in ESP course design, but recognizes the existence of a threshold proficiency level, then a global syllabus which encompasses all proficiency levels would have to include elements of both Type A and Type B syllabi. The important consideration here is that the lower the level of students' proficiency, the more focus will veer towards form and the higher students' proficiency, the more focus will veer towards interactional and functional components. The syllabus needs to be dynamic, not static, with ample opportunity for feedback and flexibility.

The shift from form to interaction can occur at any time and is not limited to a particular stratum of learner ability (Yalden, 1983). She suggests (p.124) that different elements (linguistic forms, functional, discourse and rhetorical components, specialized content and surface features of language) be emphasized in different proportions at various phases of language learning.

5.5. Tasks and activities specification

"What the syllabus designer and the teacher must decide is which classroom tasks will ensure maximum transfer of learning to tasks which have not been taught."
(Nunan, 1988b:23)

As it was discussed earlier, the transfer climate in Iran is not so satisfactory to provide the students with the experience of using the English language in real world. This makes the task of course design more challenging. The courses need to compensate for the lack of transfer climate by including tasks that enhance students' engagement and involvement. Deep-end strategies and assigning project works, for example, are affective ways of creating a favourable transfer climate. For a detailed discussion of issues in task design refer to the review of the literature.

One major role that a task should assume, particularly in ESP courses in EFL contexts such as Iran, is creating knowledge through experience to compensate for the lack of transfer climate and motivation. Integrating the methodology of the specialist field is also suggested in the literature.

According to Dudley-Evans and St. John (1998:191), in the ESP situation we also need to activate and build on the learning styles and strategies which have been developed through the specialist field, that is through the academic and professional culture. For example,

extracting information into tables, flowcharts and other diagrammatic formats is often more natural for EST learners than for their teachers. They (ibid.) go on saying that a strength of ESP methodology is the way in which language learning and subject learning approaches can be integrated.

Case studies and *project works* are two examples of the areas of activities, learning styles and strategies which have been developed through the field of medicine. By integrating these methodologies in ESP courses and books we can provide students with some aspect of a real-life scenario, through which they can apply and integrate knowledge, skills, theory and any experience. For a detailed discussion of case studies and project works refer to chapter two.

Tasks such as project work have the advantage of involving several activities: It involves extensive reading, not-taking, summarizing, paraphrasing, efficient writing, and oral presentation on the part of the researcher, and listening and not-taking on the part of the audience.

Implications

Designing a task-based curriculum involves making decisions about what tasks learners will *do* (a question of selection) and, then, the order in which they will perform these tasks (a question of grading). Then there are decisions to be made regarding the specific methodological procedures for teaching each task (Ellis, 2003:31). Skehan (1996a) suggests that these can be organized in terms of pre-task, during-task, and after-task choices. According to McDonough and Shaw (2003:48), despite its emphasis on communication and interaction, it is important to note that the TBL approach is concerned with accuracy as well

as fluency. It achieves this most obviously through the TBL framework which has three key phases:

1. the pre-task phase, which includes work on introducing the topic, finding relevant language and so on
2. the task cycle itself
3. language focus

Figure 5.6 is a schematic representation of the process of tasks and activities specification suggested in this study based on the content specification and objective inventories established through needs analysis.
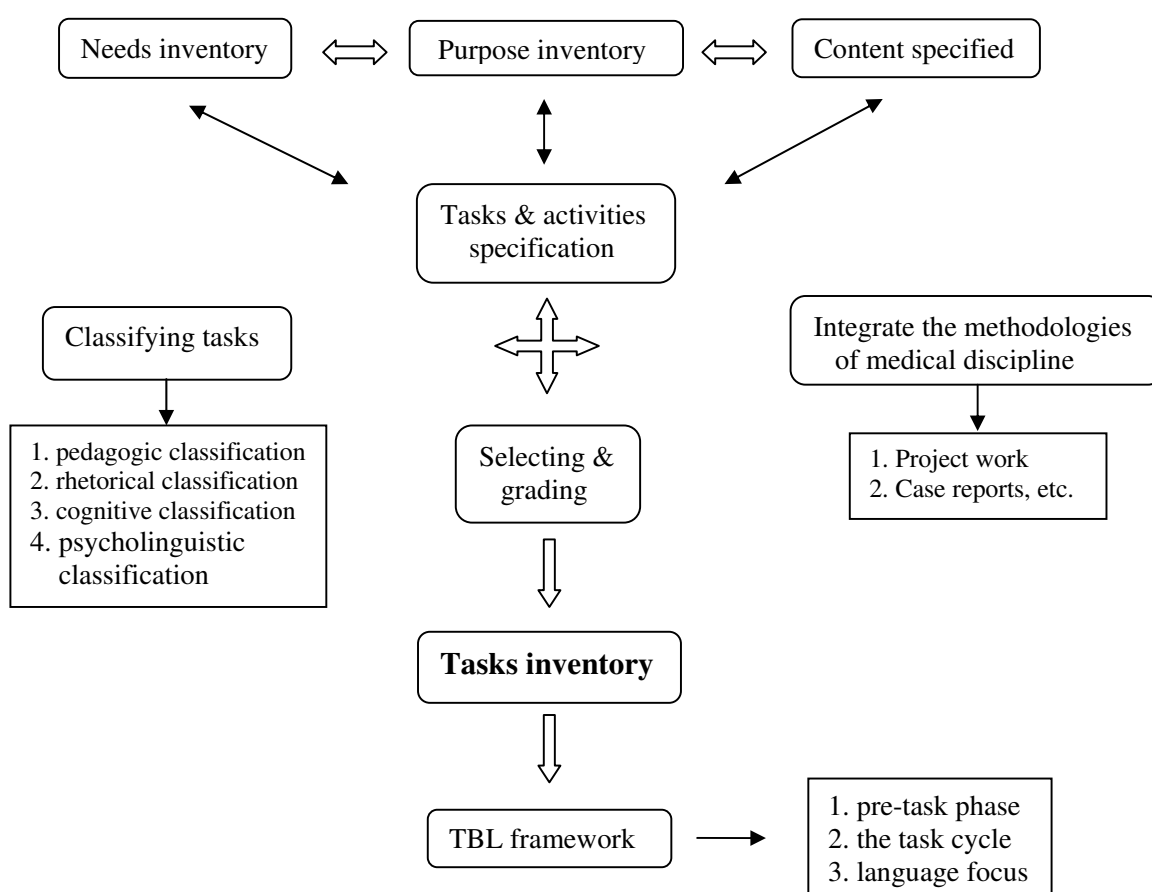
Figure 5.6: Tasks and activities specification

5.6. Merging syllabus and methodology

In teaching EAP, it is necessary to consider the process of reaching the goal at least as much as the content that needs to be covered. According to Watson Todd (2003), "the teaching of EAP has perhaps suffered from too great an emphasis on content. He speculates that a more balanced approach would be to give the 'what' and the 'how' of EAP equal weighting in course design." One way to address the 'how' of EAP teaching is to specify what kinds of tasks and activities can engage students in the use of skills and processes related to specific language teaching objectives.

As a matter of fact, the distinction between syllabus and methodology becomes difficult to sustain as we witness a shift from product view to process view, as we identify that learning and communication are processes rather than a set of products. As Nunan (1988b:39) puts, "once consideration of learning processes is built into the syllabus, the traditional distinction between syllabus design and methodology becomes difficult to sustain." He (ibid.) also observes: "the traditional distinction between syllabus design and methodology becomes difficult to sustain if it is accepted that syllabus design should include the specification of learning tasks and activities" (p. *viii*).

Appendix D includes a collection of tasks and activities. The tasks reflect adherence to a multi-syllabus approach in which both content specification and methodology have received fair attention and treatment. The examples are mostly from *Bridging the Gap,* by Aslrasouli (2004). Some other tasks have been developed for inclusion in this study. They follow the following models in task completion and chapter organization.

To contribute to the learner autonomy, each chapter in the course begins with more focus on declarative knowledge and gradually moves towards procedural knowledge. Each chapter

begins with a direct explanation of the strategies and their modeling, then guided practice, and finally independent application of those strategies. Figure 5.7 illustrates a single chapter.
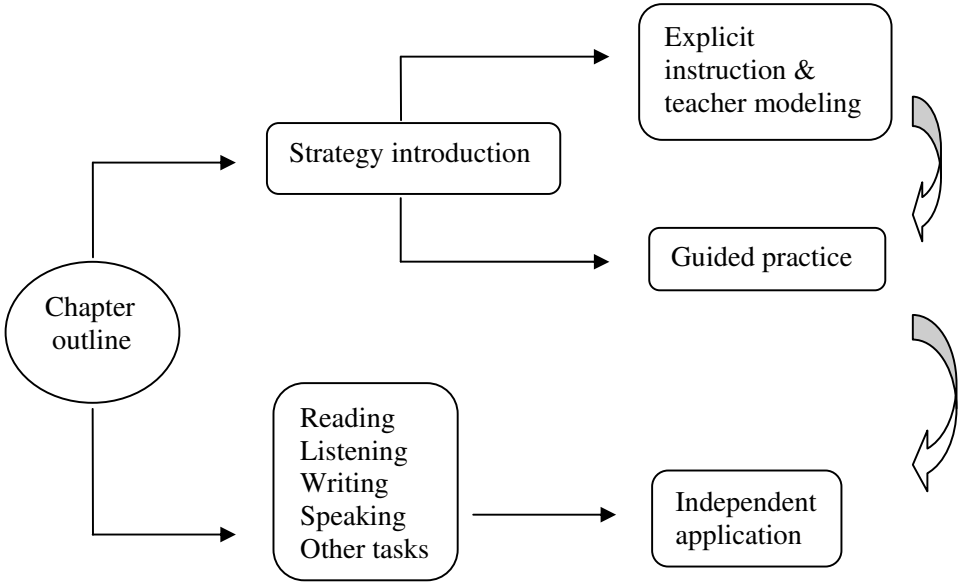
Figure 5.7: Chapter outline

The organization of each chapter follows the model proposed by Anthony et al. (1993:301):
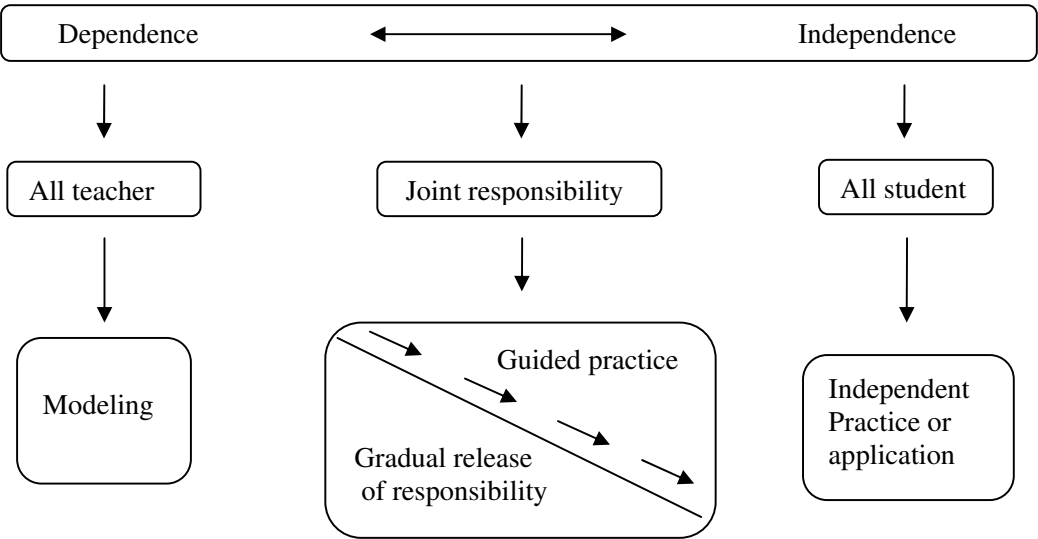
Figure 5.8: Proportion of responsibility for task completion

5.7. Concluding remarks

It should be clear from the foregoing that EAP/ESP course design and material development is a multi-faceted and dynamic process which requires a high degree of particularity and practicality. It, therefore, needs to be based on a comprehensive framework which addresses learner and setting factors and covers all aspects of needs analysis, means analysis, and situation analysis.

The fact that needs, situations, means, expectations, and student resources vary among and within nations indicates that course design and teaching need to be negotiated and dynamic processes and that each community of students in the world is unique, in a sense, and requires a particular course which is based on their particular needs, resources available, social context, and educational background. This, also, implies that EAP/ESP materials development should be, to a great extent, a process of local relevance and significance. As a result, EAP/ESP practitioners need to take a more active role and let in the air of modern practical thinking and rethinking in a renewable system and attempt to carry out research-based and localized materials development and course design to satisfy the needs of their local students. In so doing, the production and presentation of ESP materials need to be the outcome of teamwork if we intend to achieve satisfactory results. Needless to say, empowering students by equipping them with a repertoire of strategies and capacities to become independent, autonomous learners should be a top priority, considering the limited time allocated for EAP/ ESP courses at tertiary level.

To meet all these expectations and educate students with a profound academic literacy in English, it seems vital to expand and consolidate the momentum of EAP materials development recovery in Iran by consolidating SAMT as the only national body in EAP

materials development to carry out further research studies and projects on ESP/EAP with more funding and academic support.

We are aware that a *one-size-fits-all* approach is vulnerable to the demands of specific teaching contexts and the needs of particular learners. While medical students around the world may share some similar language needs, how they learn the language, the condition in which they are learning and where and how they apply the language are not the same. Therefore, their needs, and how they are prioritised, ordered, and then met will be different.

As Tomlinson (2003:522) puts, "let us hope that more applied and action research will soon be carried out to find out much more about what can make language learning materials effective. And let us hope that publishers and curriculum developers will have the courage and the resources to apply what we find out to what we develop. Maybe then I will manage my lifelong dream of learning and teaching a foreign language successfully."

5.8. Suggestions for further research

Every research opens new directions for further investigations. Those aspects of material development research which deal with the translation of theoretical rationales into a concrete model of a course syllabus are the least touched areas of investigation. This being so, the need for extensive studies could address the following:

1. The major focus of this study was on needs analysis as the cornerstone of course design. Other studies can be conducted to develop and establish a comprehensive list of goals and objectives for different aspects of medical students' linguistic and communicative needs.

2. Also one can conduct a research to compile the most efficient content and tasks for the students of medicine in Iran based on the findings of needs analysis presented in this study.

3. Although some syllabuses may focus on methodological issues and give recommendations for teaching techniques, activities, exercises and tasks to be employed in the class, a research study is required, through the observation of classes, to see how those methodological concerns and priorities are implemented in the classroom.

4. A research can investigate medical students or professionals' most common problems in writing or speaking though the analysis of their performance, for example, their research papers or their seminar presentations.

5. Another related research can aim at establishing the most frequent types of comments made by peer reviewers to identify the most frequent linguistic problems that Iranian medical researchers encounter.

6. A research can investigate the effectiveness of a particular strategy or task in improving the performance of medical students.

7. One may investigate effective ways of assessing ESP.

8. In this line, another study may investigate how changes in assessment method can bring about changes in teaching methods and learning activities (washback effect).

9. Similar studies can be conducted for other disciplines.

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Appendices

Appendix A

Medical Academic Word List (MAWL) (Wang et al. 2008)

1	Cell	41	infect	81	symptom	121	versus	161	Mortality
2	Data	42	culture	82	detect	122	drug	162	Array
3	muscular	43	mediate	83	molecular	123	laboratory	163	Derive
4	significant	44	Score	84	error	124	minimize	164	Series
5	Clinic	45	affect	85	incubate	125	onset	165	Buffer
6	Analyze	46	potential	86	donor	126	reveal	166	Specimen
7	Respond	47	individual	87	intense	127	scan	167	Focus
8	Factor	48	expose	88	chronic	128	monitor	168	Display
9	Method	49	involve	89	fraction	129	criterion	169	Plasma
10	Protein	50	survive	90	insulin	130	visual	170	Abstract
11	Tissue	51	Target	91	contrast	131	duration	171	Grade
12	Dose	52	respective	92	react	132	cycle	172	Secondary
13	Gene	53	intervene	93	source	133	investigate	173	Strategy
14	Previous	54	Site	94	available	134	acute	174	Graft
15	demonstrate	55	Per	95	disorder	135	sequence	175	Undergo
16	Normal	56	design	96	positive	136	select	176	Peripheral
17	Process	57	primary	97	structure	137	maximize	177	Transcription
18	Similar	58	approach	98	multiple	138	whereas	178	Despite
19	concentrate	59	estimate	99	generate	139	peak	179	Consist
20	Function	60	component	100	conclude	140	elevation	180	Status
21	Therapy	61	Acid	101	medium	141	image	181	Furthermore
22	Indicate	62	baseline	102	inhibit	142	enzyme	182	Immune

23	Area	63	procedure	103	complex	143	parameter	183	Reverse
24	Obtain	64	overall	104	distribute	144	isolate	184	Infuse
25	Research	65	pathway	105	major	145	mutation	185	Author
26	Vary	66	inflammation	106	tumor	146	enhance	186	Interact
27	Activate	67	region	107	initial	147	calcium	187	Issue
28	Require	68	participate	108	channel	148	glucose	188	Negative
29	Induce	69	lesion	109	receptor	149	appropriate	189	Throughout
30	Cancer	70	technique	110	membrane	150	incidence	190	Goal
31	Occur	71	volume	111	stress	151	conduct	191	Vein
32	Role	72	Serum	112	strain	152	protocol	192	Chamber
33	Evident	73	define	113	nuclear	153	background	193	Independent
34	Range	74	evaluate	114	ratio	154	stimulate	194	Proliferation
35	Identify	75	Prior	115	approximate	155	algorithm	195	Formation
36	Period	76	Assay	116	release	156	establish	196	Subsequent
37	Outcome	77	injury	117	transplant	157	efficacy	197	Predict
38	Phase	78	section	118	surgery	158	hypothesis	198	Correspond
39	Specific	79	Task	119	assess	159	feature	199	Correlate
40	Liver	80	achieve	120	impact	160	interval	200	Regulate
201	Exclude	248	Tract	295	concept	342	renal	389	Unique
202	metabolic	249	Toxic	296	transport	343	environment	390	Overlap
203	Device	250	relevant	297	rotate	344	couple	391	Adjacent
204	Recruit	251	episode	298	input	345	laser	392	Node
205	Final	252	acquire	299	absorb	346	magnitude	393	Transform
206	Impair	253	communicate	300	replicate	347	formula	394	Modify
207	Inject	254	internal	301	distinct	348	deficit	395	Manual
208	Percent	255	dimension	302	radical	349	alter	396	Colleague

209	Publish	256	Layer	303	superior	350	access	397	Core
210	Remove	257	microscope	304	contact	351	supplement	398	Entry
211	syndrome	258	adverse	305	ensure	352	eliminate	399	Deficient
212	Exhibit	259	recipient	306	stable	353	graph	400	Cascade
213	Blot	260	density	307	prevalence	354	shift	401	Benefit
214	Defect	261	Virus	308	capture	355	capacity	402	Identical
215	Biopsy	262	interpret	309	degrade	356	qualitative	403	Parallel
216	Index	263	document	310	anesthesia	357	simulate	404	Migrate
217	Diameter	264	instruct	311	optimal	358	globe	405	Reagent
218	cognitive	265	Oral	312	kit	359	modulate	406	Exceed
219	follow up	266	theory	313	bias	360	output	407	Comprise
220	Fluid	267	illustrate	314	proximal	361	attenuate	408	Highlight
221	Lipid	268	Probe	315	constant	362	statistic	409	Evolution
222	magnetic	269	diagnose	316	incorporate	363	prescribe	410	Schedule
223	Margin	270	consequence	317	sufficient	364	differentiate	411	Organism
224	Energy	271	version	318	sustain	365	equivalent	412	Predominant
225	Locate	272	create	319	label	366	orient	413	Cumulative
226	survey	273	Dilute	320	barrier	367	practitioner	414	Purchase
227	software	274	skeletal	321	zone	368	substantial	415	Plot
228	profile	275	Novel	322	chart	369	chemical	416	Seek
229	attribute	276	threshold	323	implement	370	thereby	417	Emerge
230	convention	277	technology	324	trauma	371	consent	418	Affinity
231	synthesis	278	element	325	fund	372	intake	419	Valid
232	recover	279	dynamic	326	context	373	stance	420	Code
233	objective	280	challenge	327	hence	374	trend	421	Sterile
234	filter	281	typical	328	community	375	overnight	422	Compute

235	segment	282	transfer	329	lateral	376	contribute	423	Prospect
236	compound	283	aspect	330	facilitate	377	enable	424	Utilize
237	link	284	Diet	331	trim	378	spectrum	425	Deposit
238	guideline	285	cohort	332	prolong	379	assign	426	Column
239	extract	286	external	333	quantify	380	option	427	Contract
240	proportion	287	vector	334	perception	381	implicate	428	Scar
241	regression	288	antibiotic	335	accumulate	382	aid	429	Axis
242	questionnaire	289	domain	336	expert	383	tag	430	Inferior
243	discharge	290	temporary	337	grant	384	portion	431	Deviate
244	respiratory	291	linear	338	amplification	385	electron	432	Trigger
245	gender	292	Plus	339	random	386	cope	433	Loop
246	summary	293	Digit	340	construct	387	decline	434	Precursor
247	promote	294	accurate	341	mount	388	species	435	Perceive
436	preliminary	474	emphasize	512	nitrogen	550	rationale	589	Biology
437	undertake	475	physiology	513	format	551	simultaneous	590	Urban
438	substitute	476	Oxide	514	robust	552	transient	591	Verify
439	whilst	477	restore	515	spontaneous	553	secrete	592	Speculate
440	scenario	478	conflict	516	principal	554	methanol	593	Postulate
441	adapt	479	phenomenon	517	transmit	555	confer	594	Routine
442	adult	480	invade	518	audit	556	constitute	595	Somewhat
443	expand	481	restrict	519	decade	557	accomplish	596	Catheter
444	cord	482	attach	520	compromise	558	enroll	597	Odd
445	fundamental	483	longitude	521	cue	559	embryo	598	Discrete
446	feedback	484	technical	522	gland	560	logistic	599	Converse
447	sum	485	nevertheless	523	assist	561	project	600	Span
448	elicit	486	append	524	inner	562	insight	601	Augment

449	circulation	487	infiltrate	525	intrinsic	563	compliance	602	Depict
450	tolerance	488	bacterium	526	consume	564	emission	603	Adequate
451	team	489	agonist	527	suppress	565	soluble	604	Neutral
452	Sex	490	Rely	528	fragment	566	comment	605	Thereafter
453	candidate	491	capable	529	hypertension	567	oxygen	606	Annual
454	assume	492	manipulate	530	placebo	568	warrant	607	Plastic
455	imply	493	histology	531	dominant	569	route	608	Professional
456	terminal	494	pharmacology	532	text	570	morbidity	609	Recall
457	vascular	495	saline	533	susceptible	571	widespread	610	Entity
458	hormone	496	persist	534	spinal	572	alcohol	611	Precise
459	minor	497	integrity	535	corporate	573	conjugate	612	Successive
460	panel	498	precede	536	principle	575	alternative	613	Contaminate
461	aggressive	499	Rear	537	relapse	576	manifest	614	Tone
462	comprehensive	500	mental	538	numerical	577	cluster	615	Integrate
463	residual	501	demographic	539	resolve	578	notion	616	Confound
464	perspective	502	pathology	540	mature	579	render	617	Profound
465	brief	503	prominent	541	uniform	580	malignancy	618	Tension
466	trace	504	apparatus	542	diverse	581	resemble	619	Dramatic
467	equip	505	paradigm	543	retain	582	obvious	620	Blast
468	accelerate	506	adjust	544	abdominal	583	antigen	621	Encompass
469	template	507	crucial	545	lane	584	concomitant	622	Consult
470	mode	508	nervous	546	vital	585	fusion	623	Static
471	diminish	509	gradient	547	suspend	586	elucidate		
472	consecutive	510	disrupt	548	voluntary	587	consensus		
473	foundation	511	encounter	549	diffuse	588	file		

Appendix B (Questionnaires)

1. Students' Questionnaire

Dear Participants,

The following questionnaire is part of a research project that investigates the needs of students of medicine in Iran taking English as a required course. The questionnaire is divided into four parts. It is designed to be answered within thirty minutes. Please answer all questions as accurately as you can.
Please note that you do not have to write your name and your participation in this research study is completely voluntary.
I am grateful for your time and effort in completing the questionnaire.

Thank you

A. Background Information

1. Name and family name: (optional) ---------------------   2. Age ----------- years
3. Sex: (a) male (b) female
4. Department of Medicine at …………………………..
5. Have you passed the General English course?   (a) Yes (b) No
6. Have you passed EMP1 (English for medical purposes 1)? (a) Yes   (b) No
7. Which course books are taught for EMP1 and EMP2?

B. Overview of Skills Needed, Difficulties Encountered and Importance Perceived

➢ In your courses of English for Medical Purposes (EMP), how often are you **expected to use** the following skills? (please tick the right answer):

	Never	**Rarely**	**Sometimes**	**Often**	**Very often**
1. Reading					
2. Writing					
3. Speaking					
4. Listening					

➢ How often do you **have difficulty** with each of these skills? (please tick the right answer):

	Never	**Rarely**	**Sometimes**	**Often**	**Very often**
5. Reading					
6. Writing					
7. Speaking					
8. Listening					

If you have other comments which might be helpful, please write them here.

➢ How **important to success in your course of study** are the following abilities? (please tick the right answer):

	Very low	**Low**	**Moderate**	**High**	**Very high**
9. Listening to English					
10. Speaking English					
11. Writing English					
12. Reading English					

➢ How **important to success in your field after graduation** are the following abilities? (please tick the right answer):

	Very low	**Low**	**Moderate**	**High**	**Very high**
13. Listening to English					
14. Speaking English					
15. Writing English					
16. Reading English					

C. Academic Skills

Speaking Skills With regard to speaking skills, please indicate for each of the following:

➢ I. How **important** the skill is (please tick the right answer):

	Very low	**low**	**Moderate**	**high**	**Very high**
17. Having accurate pronunciation					
18. Seminar presentation skills					
19. Conversational exchanges with patients, nurses, colleagues, etc.					
20. Transferring information from diagrams, pictures, etc. to spoken English					

➢ II. How often you **have problems** with the skill (please tick the right answer):

	Never	**Rarely**	**Sometimes**	**Often**	**Very often**
21. Having accurate pronunciation					
22. Seminar presentation skills					
23. Conversational exchanges with patients, nurses, colleagues, etc.					
24. Transferring information from diagrams, pictures, etc. to spoken English					

If you have other comments which might be helpful, please write them here.

Listening Skills With regard to listening skills, please indicate for each of the following:

➤ I. How **important** the skill is (please tick the right answer):

	Very low	Low	Moderate	High	Very high
25. Listening to medical news					
26. Taking effective notes					
27. Understanding lectures and presentations					
28. Listening to educational medical films					

➤ II. How often you **have problems** with the skill (please tick the right answer):

	Never	Rarely	Sometimes	Often	Very often
29. Listening to medical news					
30. Taking effective notes					
31. Understanding lectures and presentations					
32. Listening to educational medical films					

Writing Skills With regard to writing skills, please indicate for each of the following:

➤ I. How **important** the skill is (please tick the right answer):

	Very low	low	Moderate	High	Very High
33. Overall writing ability (using appropriate vocabulary, organization, etc.)					
34. Writing medical case reports					
35. Writing articles for medical journals					
36. Transforming information from diagrams, tables, pictures, etc. to written English					

➤ II. How often you **have problems** with the skill (please tick the right answer):

	Never	Rarely	Sometimes	Often	Very often
37. Overall writing ability (using appropriate vocabulary, organization, etc.)					
38. Writing medical case reports					
39. Writing articles for medical journals					
40. Transforming information from diagrams, tables, pictures, etc. to written English					

If you have other comments which might be helpful, please write them here.

Reading Skills With regard to reading skills, please indicate for each of the following:

> I. How **important** the skill is (please tick the right answer):

	Very low	Low	Moderate	High	Very high
41. Reading medical text books					
42. Reading medical articles and reports					
43. Reading English newspapers and magazines					
44. Reading and interpreting the visuals such as pictures, tables, diagrams, charts, etc.					

> II. How often you **have problems** with the skill (please tick the right answer):

	Never	Rarely	Sometimes	Often	Very often
45. Reading medical text books					
46. Reading medical articles and reports					
47. Reading English newspapers and magazines					
48. Reading and interpreting the visuals such as pictures, tables, diagrams, charts, etc.					

D. Syllabus, Content and Methodology evaluation

Note: (EMP=English for Medical Purposes, EGAP=English for General Academic Purposes)

> Please tick the relevant choice for each item.

49. When should the EMP courses be offered?

in the 1st & 2nd year	in the 3rd & 4th year	in the 5th & 6th year	in the first & last year	throughout the whole course of study
1	2	3	4	5

50. How long should the EMP courses be offered?

for 2 semester	for 3 semesters	for 4 semesters	for 5 semesters	throughout the whole course of study
1	2	3	4	5

51. Has the EGAP course, offered prior to EMP courses, enabled you to efficiently embark on your EMP courses?

To a very small extent	To a small extent	Somewhat	To a great extent	To a very great extent
1	2	3	4	5

52. Have the present EMP course books provided you with skills and strategies needed to meet your academic and professional requirements?

To a very small extent	To a small extent	Somewhat	To a great extent	To a very great extent
1	2	3	4	5

53. Are the present EMP course books appealing in terms of subject matter and content?

To a very small extent	To a small extent	Somewhat	To a great extent	To a very great extent
1	2	3	4	5

54. Do the present EMP course books contain visual aids such as photos, tables, charts, graphs, cartoons, etc.?

To a very small extent	To a small extent	Somewhat	To a great extent	To a very great extent
1	2	3	4	5

55. Are other materials such as medical reports and articles, films, etc. introduced and practiced along with the main course books?

To a very small extent	To a small extent	Somewhat	To a great extent	To a very great extent
1	2	3	4	5

56. Do you think material for spoken English (audio or visual) containing dialogues, lectures, instructions, reports, etc. is required?

To a very small extent	To a small extent	Somewhat	To a great extent	To a very great extent
1	2	3	4	5

57. Do you feel satisfied with the methodology used in your class?

To a very small extent	To a small extent	Somewhat	To a great extent	To a very great extent
1	2	3	4	5

If you have other comments which might be helpful, please write them here. Thank you

2. EFL Instructors' Questionnaire

Dear EFL Instructor,

The following questionnaire is part of a research project that investigates the needs of students of medicine in Iran taking English as a required course. The questionnaire is divided into four parts. It is designed to be answered within twenty five minutes. Please answer all questions as accurately as you can.
I am grateful for your time and effort in completing the questionnaire.
Thank you

A. Background information

1. Name and family name: (optional) ------------------   3. Teaching experience ….. years

 2. Department and university …………………………   4. Do you teach ESP …….

B. Overview of Skills Needed, Difficulties Encountered and Importance Perceived

➢ In the present courses of English for Medical Purposes, how often are the students of medicine in Iran **expected to use** the following skills? (please tick the right answer):

	Never	Rarely	Sometimes	Often	Very often
1. Reading					
2. Writing					
3. Speaking					
4. Listening					

➢ How often do they **have difficulty** with each of these skills? (please tick the right answer)

	Never	Rarely	Sometimes	Often	Very often
5. Reading					
6. Writing					
7. Speaking					
8. Listening					

➢ How **important to success in Iranian medical students' course of study** are the following abilities? (please tick the right answer)

	Very low	Low	Moderate	High	Very high
9. Listening to English					
10. Speaking English					
11. Writing English					
12. Reading English					

➢ How **important to success in Iranian medical students' field after graduation** are the following abilities? (please tick the right answer)

	Very low	Low	Moderate	High	Very high
13. Listening to English					
14. Speaking English					
15. Writing English					
16. Reading English					

C. Academic Skills

Speaking Skills With regard to speaking skills, please indicate for each of the following:

➢ I. How **important** the skill is for your students (please tick the right answer):

	Very low	low	Moderate	high	Very high
17. Having accurate pronunciation					
18. Seminar presentation skills					
19. Conversational exchanges with patients, nurses, colleagues, etc.					
20. Transferring information from diagrams, pictures, etc. to spoken English					

➢ II. How often your students **have problems** with the skill (please tick the right answer):

	Never	Rarely	Sometimes	Often	Very often
21. Having accurate pronunciation					
22. Seminar presentation skills					
23. Conversational exchanges with patients, nurses, colleagues, etc.					
24. Transferring information from diagrams, pictures, etc. to spoken English					

Listening Skills With regard to listening skills, please indicate for each of the following:

➢ I. How **important** the skill is for your students (please tick the right answer):

	Very low	Low	Moderate	High	Very high
25. Listening to medical news					
26. Taking effective notes					
27. Understanding lectures and presentations					
28. Listening to educational medical films					

➢ II. How often your students **have problems** with the skill (please tick the right answer):

	Never	Rarely	Sometimes	Often	Very often
29. Listening to medical news					
30. Taking effective notes					
31. Understanding lectures and presentations					
32. Listening to educational medical films					

Writing Skills With regard to writing skills, please indicate for each of the following:

➢ I. How **important** the skill is for your student (please tick the right answer):

	Very low	low	Moderate	High	Very High
33. Overall writing ability (using appropriate vocabulary, organization, etc.)					
34. Writing medical case reports					
35. Writing articles for medical journals					
36. Transforming information from diagrams, tables, pictures, etc. to written English					

➢ II. How often your students **have problems** with the skill (please tick the right answer):

	Never	Rarely	Sometimes	Often	Very often
37. Overall writing ability (using appropriate vocabulary, organization, etc.)					
38. Writing medical case reports					
39. Writing articles for medical journals					
40. Transforming information from diagrams, tables, pictures, etc. to written English					

Reading Skills With regard to reading skills, please indicate for each of the following:

➢ I. How **important** the skill is for your students (please tick the right answer):

	Very low	Low	Moderate	High	Very high
41. Reading medical text books					
42. Reading medical articles and reports					
43. Reading English newspapers and Magazines					
44. Reading and interpreting the visuals such as pictures, tables, diagrams, charts, etc.					

➢ II. How often your students **have problems** with the skill (please tick the right answer):

	Never	Rarely	Sometimes	Often	Very often
45. Reading medical text books					
46. Reading medical articles and Reports					
47. Reading English newspapers and magazines					
48. Reading and interpreting the visuals such as pictures, tables, diagrams, charts, etc.					

D. Syllabus, Content and Methodology evaluation
   Note: (EMP=English for Medical Purposes, EGP=English for General Purposes)

➢ Please tick the relevant choice for each item.

49. When should the EMP courses be offered?

in the 1st & 2nd year	in the 3rd & 4th year	in the 5th & 6th year	in the first & last year	throughout the whole course of study
1	2	3	4	5

50. How long should the EMP courses be offered?

for 2 semester	for 3 semesters	for 4 semesters	for 5 semesters	throughout the whole course of study
1	2	3	4	5

51. Does the EGAP course, offered prior to EMP courses, enable students of medicine to efficiently embark on their EMP courses?

To a very small extent	To a small extent	Somewhat	To a great extent	To a very great extent
1	2	3	4	5

52. Are the present EMP course books based on an analysis of learners' needs?

To a very small extent	To a small extent	Somewhat	To a great extent	To a very great extent
1	2	3	4	5

53. Do the present EMP course books seek to familiarize students with the lexis and genre typical of their field?

To a very small extent	To a small extent	Somewhat	To a great extent	To a very great extent
1	2	3	4	5

54. Considering the course aim and syllabus requirements, are all four skills adequately covered in the present EMP course books?

To a very small extent	To a small extent	Somewhat	To a great extent	To a very great extent
1	2	3	4	5

55. Do the present EMP course books include advice/help on study skills and learning strategies?

To a very small extent	To a small extent	Somewhat	To a great extent	To a very great extent
1	2	3	4	5

56. Do the present EMP course books contain tasks and activities that require linguistic preparedness (for the bottom-up processing) as well as conceptual preparedness (for top-down processing)?

To a very small extent	To a small extent	Somewhat	To a great extent	To a very great extent
1	2	3	4	5

57. Do the present EMP course books follow a multi-syllabus approach?

To a very small extent	To a small extent	Somewhat	To a great extent	To a very great extent
1	2	3	4	5

58. Do the present EMP course books contain tasks and activities to improve academic skills of interpreting and transforming information from diagrams, tables, pictures, charts, etc. to language (spoken or written) and vice versa?

To a very small extent	To a small extent	Somewhat	To a great extent	To a very great extent
1	2	3	4	5

If you have other comments which might be helpful, please write them here.

Thank you

3. Medical academics and professionals' Questionnaire

Dear instructor,
The following questionnaire is part of a research project that investigates the needs of students of medicine in Iran taking English as a required course. The questionnaire is divided into four parts. It is designed to be answered within twenty five minutes. Please answer all questions as accurately as you can.
I am grateful for your time and effort in completing the questionnaire.
Thank you

A. Background Information
Name and family name: (optional) -----------------
Department of Medicine at ………………………….
What subject or subjects are you teaching?
As a medical academic are you involved in the medical profession?

B. Overview of Skills Needed, Difficulties Encountered and Importance Perceived

> In the present courses of English for Medical Purposes, how often are the students of medicine in
> Iran **expected to use** the following skills? (please tick the right answer):

	Never	**Rarely**	**Sometimes**	**Often**	**Very often**
1. Reading					
2. Writing					
3. Speaking					
4. Listening					

> How often do they **have difficulty** with each of these skills? (please tick the right answer):

	Never	**Rarely**	**Sometimes**	**Often**	**Very often**
5. Reading					
6. Writing					
7. Speaking					
8. Listening					

If you have other comments which might be helpful, please write them here.

➢ How **important to success in Iranian medical students' course of study** are the following abilities? (please tick the right answer):

	Very low	Low	Moderate	High	Very high
9. Listening to English					
10. Speaking English					
11. Writing English					
12. Reading English					

➢ How **important to success in Iranian medical students' field after graduation** are the following abilities? (please tick the right answer):

	Very low	Low	Moderate	High	Very high
13. Listening to English					
14. Speaking English					
15. Writing English					
16. Reading English					

C. Academic Skills

Speaking Skills With regard to speaking skills, please indicate for each of the following:

➢ I. How **important** the skill is for your students (please tick the right answer):

	Very low	low	Moderate	High	Very high
17. Having accurate pronunciation					
18. Seminar presentation skills					
19. Conversational exchanges with nurses, colleagues, etc.					
20. Transferring information from diagrams, pictures, etc. to spoken English					

➢ II. How often your students **have problems** with the skill (please circle):

	Never	Rarely	Sometimes	Often	Very often
21. Having accurate pronunciation					
22. Seminar presentation skills					
23. Conversational exchanges with patients, nurses, colleagues, etc.					
24. Transferring information from diagrams, pictures, etc. to spoken English					

If you have other comments which might be helpful, please write them here.

Listening Skills With regard to listening skills, please indicate for each of the following:

➢ I. How **important** the skill is for your students (please tick the right answer):

	Very low	Low	Moderate	High	Very high
25. Listening to medical news					
26. Taking effective notes					
27. Understanding lectures and presentations					
28. Listening to educational medical films					

➢ II. How often your students **have problems** with the skill (please tick the right answer):

	Never	Rarely	Sometimes	Often	Very often
29. Listening to medical news					
30. Taking effective notes					
31. Understanding lectures and presentations					
32. Listening to educational medical films					

Writing Skills With regard to writing skills, please indicate for each of the following:

➢ I. How **important** the skill is for your student (please tick the right answer):

	Very low	low	Moderate	High	Very High
33. Overall writing ability (using appropriate vocabulary, organization, etc.)					
34. Writing medical case reports					
35. Writing articles for medical journals					
36. Transforming information from diagrams, tables, pictures, etc. to written English					

➢ II. How often your students **have problems** with the skill (please tick the right answer):

	Never	Rarely	Sometimes	Often	Very often
37. Overall writing ability (using appropriate vocabulary, organization, etc.)					
38. Writing medical case reports					
39. Writing articles for medical journals					
40. Transforming information from diagrams, tables, pictures, etc. to written English					

Reading Skills With regard to reading skills, please indicate for each of the following:

➢ I. How **important** the skill is for your students (please tick the right answer):

	Very low	Low	Moderate	High	Very high
41. Reading medical text books					
42. Reading medical articles and reports					
43. Reading English newspapers and Magazines					
44. Reading and interpreting the visuals such as pictures, tables, diagrams, charts, etc.					

➢ II. How often your students **have problems** with the skill (please tick the right answer):

	Never	Rarely	Sometimes	Often	Very often
45. Reading medical text books					
46. Reading medical articles and Reports					
47. Reading English newspapers and magazines					
48. Reading and interpreting the visuals such as pictures, tables, diagrams, charts, etc.					

D. Syllabus, Content and Methodology evaluation
   Note: (EMP=English for Medical Purposes, EGP=English for General Purposes)

➢ Please tick the relevant choice for each item.

49. When should the EMP courses be offered?

in the 1st & 2nd year	in the 3rd & 4th year	in the 5th & 6th year	in the first & last year	throughout the whole course of study
1	2	3	4	5

50. How long should the EMP courses be offered?

For 2 semester	for 3 semesters	for 4 semesters	for 5 semesters	throughout the whole course of study
1	2	3	4	5

51. Does the EGP course, offered prior to EMP courses, enable students of medicine to efficiently embark on their EMP courses?

To a very small extent	To a small extent	Somewhat	To a great extent	To a very great extent
1	2	3	4	5

52. Can the current EMP course books satisfy the academic and professional needs of students of medicine in Iran?

To a very small extent	To a small extent	Somewhat	To a great extent	To a very great extent
1	2	3	4	5

53. Are you satisfied with your students' academic English abilities?

To a very small extent	To a small extent	Somewhat	To a great extent	To a very great extent
1	2	3	4	5

54. Do you expect your students to have satisfactory English skills?

Never	Rarely	Sometimes	Often	Very often
1	2	3	4	5

55. Do you ask your students to write reports and research papers in English?

Never	Rarely	Sometimes	Often	Very often
1	2	3	4	5

56. What percentage of the required textbooks is in English?

Less than 20%	20-39%	40-69%	70-89%	90-100%
1	2	3	4	5

➢ As a medical academic and professional in Iran, what and how often do you need English for?

	Never	Rarely	Sometimes	Often	Very often
57. reading medical reports & articles					
58. writing medical articles & reports					
59. participating & presenting in seminars					
60. communicating with patients, nurses and colleagues					

If you have other comments which might be helpful, please write them here.

Thank You

Appendix C

Persian version of students' questionnaire

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بسمه تعالی
پرسشنامه دانشجویان پزشکی

دانشجوی گرامی،

پرسشنامه زیر جهت بررسی نیازهای زبانی شما در زندگی تحصیلی و حرفه‌ای تدوین شده است. پاسخ‌های دقیق شما اطلاعات ارزنده‌ای را جهت بهبود آموزش و محتوای مطالب درسی دروس زبان عمومی و بخصوص زبان تخصصی پزشکی در اختیار محققان قرار می‌دهد. این پرسشنامه شامل چهار بخش می‌باشد و بین ۲۰ تا ۳۰ دقیقه برای پاسخگویی وقت نیاز دارد.
توجه داشته باشید که شرکت شما در این مطالعه کاملاً اختیاری است و اسمتان را در صورت تمایل می‌توانید بنویسید.

به خاطر وقت و تلاشی که برای پاسخگویی به این سؤالات می‌گذارید، متشکریم.

---

۱) اطلاعات فردی
۱. نام و نام خانوادگی (درصورت تمایل):
۲. سن:
۳. جنسیت: مرد ( )   زن ( )
۴. نام دانشگاه محل تحصیل:
۵. آیا درس زبان انگلیسی عمومی را پاس کرده‌اید؟ بله ( )   خیر ( )
۶. آیا درس زبان تخصصی (۱) را پاس کرده‌اید؟ بله ( )   خیر ( )
۷. چه کتاب‌هایی برای دروس زبان تخصصی (۱) و (۲) تدریس می‌شود؟

---

۲) مهارت‌های (خواندن و درک مطلب، شنیدن و درک مطلب، نگارش، صحبت کردن)
در دروس زبان انگلیسی تخصصی برای رشته پزشکی، تا چه میزان از شما انتظار می‌رود مهارت‌های زبانی زیر را بکار ببرید؟ (لطفاً جواب مناسب را علامت بزنید.)

	۱. هرگز	۲. بندرت	۳. بعضی اوقات	۴. اغلب	۵. اکثر اوقات
۱. خواندن و درک مطلب					
۲. نگارش					
۳. صحبت کردن					
۴. شنیدن و درک مطلب					

اگر موارد دیگری به‌نظرتان می‌رسد لطفاً ذکر فرمائید.

</div>

2. میزان مشکل شما در مورد هر یک از مهارت‌های زیر چقدر است؟ (لطفاً جواب مناسب را علامت بزنید.)

	۱. هرگز	۲. بندرت	۳. بعضی اوقات	۴. اغلب	۵. اکثر اوقات
۵. خواندن و درک مطلب					
۶. نگارش					
۷. صحبت کردن					
۸. شنیدن و درک مطلب					

3. اهمیت هر یک از قابلیت‌های زیر برای **موفقیت شما در طول تحصیل** تا چه میزان می‌باشد؟ (لطفاً جواب مناسب را علامت بزنید.)

	۱. خیلی کم	۲. کم	۳. متوسط	۴. زیاد	۵. خیلی زیاد
۹. شنیدن و درک مطلب انگلیسی					
۱۰. صحبت کردن به انگلیسی					
۱۱. نگارش به انگلیسی					
۱۲. خواندن و درک مطلب انگلیسی					

4. اهمیت هر یک از قابلیت‌های زیر برای **موفقیت شما بعد از فارغ‌التحصیلی** تا چه میزان می‌باشد؟ (لطفاً جواب مناسب را علامت بزنید.)

	۱. خیلی کم	۲. کم	۳. متوسط	۴. زیاد	۵. خیلی زیاد
۱۳. شنیدن و درک مطلب انگلیسی					
۱۴. صحبت کردن به انگلیسی					
۱۵. نگارش به انگلیسی					
۱۶. خواندن و درک مطلب انگلیسی					

3) مهارت‌های زبانی دانشگاهی (آکادمیک)

مهارت‌های صحبت کردن:

در مورد مهارت‌های صحبت کردن، لطفاً هر یک از موارد زیر را مشخص کنید:
(الف) میزان اهمیت هر مهارت برای شما چقدر است؟ (لطفاً جواب مناسب را علامت بزنید.)

	۱. خیلی کم	۲. کم	۳. متوسط	۴. زیاد	۵. خیلی زیاد
۱۷. تلفظ صحیح					
۱۸. مهارت‌های ارائه مقاله در کنفرانس‌ها					
۱۹. مکالمه و تعامل با بیماران، پرستاران، همکاران و غیره					
۲۰. برگردان اطلاعات از نمودارها، تصاویر، چارت‌ها و غیره به انگلیسی گفتاری					

(ب) میزان مشکل شما در رابطه با هر یک از مهارت‌های زیر چقدر است؟ (لطفاً جواب مناسب را علامت بزنید.)

	۱. هرگز	۲. بندرت	۳. بعضی اوقات	۴. اغلب	۵. اکثر اوقات
۲۱. تلفظ صحیح					
۲۲. مهارت‌های ارائه مقاله در کنفرانس‌ها					
۲۳. مکالمه و تعامل با بیماران، پرستاران، همکاران و غیره					
۲۴. برگردان اطلاعات از نمودارها، تصاویر، چارت‌ها و غیره به انگلیسی گفتاری					

مهارت‌های شنیدن و درک مفاهیم :
در مورد مهارتهای شنیدن و درک مفاهیم لطفاً هر یک از موارد زیر را مشخص کنید :

(**الف**) میزان اهمیت هر مهارت برای شما چقدر است؟ (لطفاً جواب مناسب را علامت بزنید.)

	۱. خیلی کم	۲. کم	۳. متوسط	۴. زیاد	۵. خیلی زیاد
۲۵. شنیدن و درک مطلب اخبار پزشکی					
۲۶. یادداشت برداری مناسب از سخنرانی‌ها					
۲۷. شنیدن و درک مطلب سخنرانی‌ها					
۲۸. شنیدن و درک مطلب فیلم ونوارهای آموزشی پزشکی					

(ب) میزان مشکل شما در مورد هر یک از مهارت‌های زیر چقدر است ؟ (لطفاً جواب مناسب را علامت بزنید.)

	۱. هرگز	۲. بندرت	۳. بعضی اوقات	۴. اغلب	۵. اکثر اوقات
۲۹. شنیدن و درک مطلب اخبار پزشکی					
۳۰. یادداشت برداری مناسب از سخنرانی‌ها					
۳۱. شنیدن و درک مطلب سخنرانی‌ها					
۳۲. شنیدن و درک مطلب فیلم ونوارهای آموزشی پزشکی					

مهارت‌های نگارش:

در مورد مهارت‌های نگارش لطفاً هر یک از موارد زیر را مشخص کنید:
(الف) میزان اهمیت هر مهارت برای شما چقدر است؟ (لطفاً جواب مناسب را علامت بزنید.)

	1. خیلی کم	2. کم	3. متوسط	4. زیاد	5. خیلی زیاد
33. توانایی نگارش عمومی (استفاده از لغات مناسب، سازماندهی منطقی ایده‌ها و غیره)					
34. نگارش گزارش‌های پزشکی					
35. نگارش مقالات برای ژورنال‌های پزشکی					
36. برگردان اطلاعات از نمودارها، چارت‌ها، جداول، تصاویر و غیره به انگلیسی نوشتاری					

(ب) میزان مشکل شما در رابطه با هر یک از مهارت‌های زیر چقدر است؟ (لطفاً جواب مناسب را علامت بزنید.)

	1. هرگز	2. بندرت	3. بعضی اوقات	4. اغلب	5. اکثر اوقات
37. توانایی نگارش عمومی (استفاده از لغات مناسب، سازماندهی منطقی ایده‌ها و غیره)					
38. نگارش گزارش‌های پزشکی					
39. نگارش مقالات برای ژورنال‌های پزشکی					
40. برگردان اطلاعات از نمودارها، چارت‌ها، جداول، تصاویر و غیره به انگلیسی نوشتاری					

اگر موارد دیگری به‌نظرتان می‌رسد لطفاً ذکر فرمائید.

مهارتهای خواندن و درک مفاهیم :

در مورد مهارتهای خواندن و درک مفاهیم، لطفاً هر یک از موارد زیر را مشخص کنید:

(الف) میزان اهمیت هر مهارت برای شما چقدر است؟ (لطفاً جواب مناسب را علامت بزنید.)

	1. خیلی کم	2. کم	3. متوسط	4. زیاد	5. خیلی زیاد
41. خواندن و درک مطالب متون کتب درسی پزشکی					
42. خواندن و درک مطالب مقالات و گزارش‌های پزشکی					
43. خواندن و درک مطالب روزنامه‌ها و مجلات					
44. خواندن و درک مطالب تصاویر، نمودارها، جداول و غیره					

(ب) میزان مشکل شما در رابطه با هر یک از مهارتهای زیر چقدر است؟ (لطفاً جواب مناسب را علامت بزنید)

	1. هرگز	2. بندرت	3. بعضی اوقات	4. اغلب	5. اکثر اوقات
45. خواندن و درک مطالب متون کتب درسی پزشکی					
46. خواندن و درک مطالب مقالات و گزارش‌های پزشکی					
47. خواندن و درک مطالب روزنامه‌ها و مجلات					
48. خواندن و درک مطالب تصاویر، نمودارها، جداول و غیره					

4) لطفاً جواب مناسب را برای هر یک از سؤالات زیر علامت بزنید.

49. دروس زبان تخصصی پزشکی کی بایستی ارائه شوند؟

(1) سال اول و دوم   (2) سال سوم و چهارم   (3) سال پنجم و ششم
(4) سال اول و آخر   (5) در کل دوره تحصیلی

50. دروس زبان تخصصی پزشکی برای چه مدتی بایستی ارائه شوند ؟

(1) 2 ترم   (2) 3 ترم   (3) 4 ترم   (4) 5 ترم   (5) در کل دوره تحصیلی

51. آیا درس زبان عمومی که قبل از دروس تخصصی پزشکی ارائه می‌شود، شما را بطور مناسب برای دروس زبان تخصصی پزشکی آماده می‌کند؟

(1) خیلی کم   (2) کم   (3) متوسط   (4) زیاد   (5) خیلی زیاد

52. آیا کتب زبان تخصصی پزشکی که در حال حاضر تدریس می‌شوند، مهارت‌ها و استراتژی‌های لازم را برای برآورد کردن نیازهای تحصیلی و حرفه‌ای شما فراهم می‌کنند؟

(1) خیلی کم   (2) کم   (3) متوسط   (4) زیاد   (5) خیلی زیاد

53. آیا کتب زبان تخصصی که در حال حاضر تدریس می‌شوند، از لحاظ موضوع و محتوا برای شما جالب هستند؟

(1) خیلی کم   (2) کم   (3) متوسط   (4) زیاد   (5) خیلی زیاد

54. آیا در کتب زبان تخصصی، که در حال حاضر تدریس می‌شوند، تصاویر، جداول و نمودارها، چارت‌ها و سایر محتوای تصویری وجود دارند؟

(1) خیلی کم   (2) کم   (3) متوسط   (4) زیاد   (5) خیلی زیاد

55. آیا موارد دیگری مثل گزارش‌های پزشکی، فیلم و نوار و سی دی به همراه کتاب‌های اصلی ارائه می‌شوند؟

(1) خیلی کم   (2) کم   (3) متوسط   (4) زیاد   (5) خیلی زیاد

56. به نظر شما مواد درسی برای زبان گفتاری (سمعی یا بصری) که شامل مکالمات، سخنرانی‌ها، آموزش، گزارش و غیره هستند، لازم می‌باشند؟

(1) خیلی کم   (2) کم   (3) متوسط   (4) زیاد   (5) خیلی زیاد

57. آیا از روش تدریس در کلاس درس زبان تخصصی راضی هستید؟

(1) خیلی کم   (2) کم   (3) متوسط   (4) زیاد   (5) خیلی زیاد

اگر موارد دیگری به‌نظرتان می‌رسد لطفاً ذکر فرمائید.

با تشکر

Appendix D

Sample Tasks and Activities

A. Explicit instruction & teacher modeling, guided practice, independent application:

Chapter 6
Coherence :Logical Sequence of Ideas

A text must have a certain structure which depends on factors quite different from those required in the structure of a single sentence. Some of these factors are called *cohesion* and *coherence*.

Cohesion: In chapter 1 you learned how to identify connections within a text. Cohesion refers to those grammatical and lexical relationships between different elements of a text. They are the ties and connections which exist within texts; the ties that connect each sentence to what has gone before.

For example:
(a)
> A: Is Jenny coming to the party?
> B: Yes, she is.

There is a link between *Jenny* and *she* and also between *is .... coming* and *is*.
(b) In the sentence:

> Diarrhea is an intestinal disease. It is a major killer of children.
> The link is between *Diarrhea* and *It*.

Coherence:

To make sense of a text you do not rely only on grammatical or lexical relationships between different elements of a text. You also use your knowledge of the world (subject matter knowledge, personal experience, etc.). Coherence is a factor that helps you make sense of a text. It refers to the relationships which link the meanings. It is a sense of unified focus and logical sequence of ideas. The concept of coherence is not something which exists in the language, but something which exists in people.

Generally a paragraph has coherence if it is a series of sentences that develop a main idea.

Exercise 1:

Read paragraphs (A & B) and choose the one that has coherence or (is coherent).

> **A** Children may get diarrhea several times a year. In fact using antibiotics when they are not really needed creates another problem — anti-microbial resistance. Last year, the WHO released oral rehydration salts with a new formula. It can be caused by water that is not clean. Antibiotics are designed to kill bacteria. Germs learn to fight medicines that are used too often.

> **B** Children may get diarrhea several times a year. As soon as they appear to have it, antibiotic medicines are often given. Antibiotics are designed to kill bacteria. But experts say antibiotics are usually not the best treatment for diarrhea. If fact, using antibiotics when they are not really needed creates another problem— anti-microbial resistance. Germs learn to fight medicines that are used too often.

As you see paragraph B has coherence because the ideas within the text are logically connected.

Exercise 2:

Choose the correct answer

Because it was cold .... (a. I went swimming/ b. I didn't go swimming).
Which one (a or b) can complete the sentence? Why?

Both a and b are grammatically correct but, logically, b is correct. The reason for our choice is not something that exists within the text, but something that exists in our head. Our world knowledge and personal experience indicate that we do not go swimming when it is cold.

Exercise 3:

In the following text there are two choices for each blank. Using your world knowledge choose the correct answer.

Today people are changing their dietary habits and eating healthy food with 1…………. (*less/more*) fat and cholesterol. Many are paying more attention to 2………..(*increasing/reducing*)stress in their lives. The number of smokers in the United States is now far 3…………. (*above/below*) the level of twenty years ago as many people succeed in breaking the habit.

Again, you see that your choice of the correct answer depends mostly on your world knowledge. You choose *less* for number 1 because you know that healthy eating involves less fat and cholesterol. You also know that we should decrease stress in our life in order to have a healthy life. So you choose *reducing* for number 2. And because people are now concerned about their health the number of smokers now should be less than twenty years ago. So the correct answer for number 3 should be *below*.

READING STRATEGIES

1. Identify topic sentence(s)
   Note: limit number of topics per paragraph
2. Determine the logical relationships among sentences and topic
3. Pay attention to transitional words/phrases that show *addition, contrast, comparison, cause/effect*

EXERCISES

Making Logical Connections

Each example in this exercise has a lead sentence and two sentences (*a and b*).That might or might not logically follow the lead sentence. Read the lead sentence, and ask yourself what kind of ideas you expect in the next sentences. Then read sentence a. Decide if it can follow the lead sentence and make good sense. Choose Y for "Yes" or N for "NO". Do the same for sentence b. Can it follow the lead sentence and make good sense? Remember:
  1. Look for the ideas that make a logical connection between each pair of sentences.
  2. This is also a vocabulary learning exercise. If you have problems with any new words, check their meaning as you work.

1. **Medicine is again beginning to emphasize the prevention of disease.**
   a. For example, more and more doctors are stressing the importance of exercise and good nutritional habits.
   b. Experience with diseases like AIDS and many forms of cancer has clearly shown that we should not rely only on drugs and surgery to fight disease.
2. **The new technology that is being introduced into hospitals has some major disadvantages.**
   a. It makes operations safer and increases the patient's chance for a successful recovery.
   b. It forces hospitals to raise the cost of their services in order to recover the costs of the expensive new equipment.

3. **Heart disease is clearly associated with the type of life that a person leads.**
   a. Modern technology allows doctors to perform surgery on patients who are suffering from heart disease.
   b. A poor diet, lack of exercise, and stress are all factors that play a role in the development of this disease.

4. **Experts in health care believe that our health-care systems emphasize the treatment of disease too much.**
   a. There is an urgent need, they say, to stress disease prevention.
   b. Merely reducing fat in people's diet, they claim, would reduce the death rate from heart disease more than all the heart surgery that is performed in the United States annually.

5. **In industrial countries, mass immunization has made it possible to almost eliminate certain infectious diseases.**
   a. In the United States, for example, there have been very few cases of polio since the polio vaccine became widely available in the 1950s.
   b. Influenza, for example, still causes ten thousand deaths in the United States annually.

6. **An enormous number of people in the world's poorest countries do not have clean drinking water or adequate sanitation facilities.**
   a. In these countries, the annual death rate from preventable diseases like simple diarrhea is extremely high.
   b. So in these countries, the first priority of the health-care systems is to build more hospitals.

7. **Recent advances in genetic research have caused ethical problems for the medical profession and for society in general.**
   a. For example, scientists are hoping ultimately to be able to use genetic engineering to produce new and safer vaccines for human use.
   b. For example, we may be able to successfully treat some genetically inherited diseases.

8. **It seems that the new drug the doctors are using in this patient's case has been very effective.**
   a. He is now completely incapable of any physical movement.
   b. The infection is disappearing and he is now conscious.

Y   N

"You were right about my needing vitamin pills. I haven't been able to get the cap off the bottle."

Conjoined Twins

Before You Read

A. Vocabulary Preview *Discuss the new vocabulary, then complete the sentences below. You may change the forms of some of the words.*

bond (n)	a strong feeling of friendship, love, or shared beliefs that unites people
identical twins (n)	twins born from a single egg and therefore of the same sex and very similar in appearance
fertilize (v)	when an egg is fertilized, the process of reproduction begins by sperm joining with the egg
split (v)	break or be broken into two or more parts
fetus (n)	a human embryo after eight weeks of development
conception (n)	the process in which a woman becomes pregnant
coin (v)	invent a new word or phrase
triplet (n)	three children born at the same time to the same mother
prenatal (adj)	before birth
originate (v)	begin to happen or exist

1. Pregnancy is the period of nine months between _____ and birth.
2. His wife gave birth to _____.
3. The epidemic is believed to have _____ from contaminated seafood.
4. Some factories _____ new words for their products.
5. Many see the idea of marriage as a permanent _____.
6. _____ check-ups are necessary.
7. The developing embryo starts to _____ into identical twins within the first two weeks.
8. The genetic material can be obtained by taking a sample from the cord joining the _____ to the womb.
9. Conjoined twins originate from a single _____ egg.
10. There is an extremely rare form of _____.

B. Discussion
Answer the following questions before you read.
1. What do you know about conjoined twins?
2. Are identical twins always the same sex?
3. What do you know about the phrase 'Siamese twins'?

Read

Read the article. The following parts have been taken out of the text. Where do you think they should go?

a. a single fertilized egg
b. 21 children between them
c. their unusual physical and emotional bonds
d. took place in 1689 by German physician G. König
e. one out of every 75.000 to 100.000 births
f. during prenatal examinations
g. they were not the first pair of conjoined twins

Conjoined Twins

Conjoined twins have fascinated people for centuries. They have been worshiped as gods and feared as monsters. Once called "monstrosities", conjoined twins are increasingly accepted into our everyday lives as we grow to understand (1) _____ and learn more about the science behind their development.

There is an extremely rare form of identical twins that occur perhaps in (2) _____ or 1 in 200 deliveries of identical twins, that of conjoined twins.

Conjoined twins originate from (3) _____ so they are always identical and same-sex twins. The developing embryo starts to split into identical twins within the first two weeks after conception but then stops before completion, leaving a partially separated egg which continues to mature into a conjoined fetus.

Perhaps the most famous pair of conjoined twins were Eng and Chang Bunker (shown above as young adults), who were born in Siam (now Thailand) on May 10, 1811 and died within hours of each other on January 17, 1874 at age 62. The Bunker twins fathered (4) _____ and were successful businessmen and ranchers in Wilkes County,
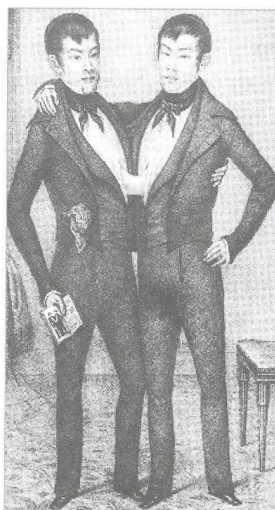
Eng and Chang Bunker

North Carolina. Attached by a five-inch connecting ligament near their breastbones, Eng and Chang married sisters Sallie and Adelaide Yates, respectively, and lived fairly private lives when they weren't touring to the world to earn incomes. After their deaths it was determined they could have been successfully separated, a medical option that was never offered to Eng and Chang during their lives.

Although Eng and Chang's fame helped coin the phrase "Siamese twins", (5) _____ recorded in medical annals as there were probably about 100 such pairs known by the time of their 1811 births. In fact, conjoined twins were recorded as early as 945 in Armenia and the first pair of successfully separated twins (6) _____ . There aren't any documented cases of conjoined triplets.

Today, most pairs of conjoined twins are successfully identified (7) _____ . Some types of conjoined twins are much easier to separate while other rare forms lead to complicated and costly procedures that can lead to difficult ethical and moral decisions of separation surgery, especially if the twins share internal organs.

■ ■ ■

After You Read

Comprehension Check

1. Why are conjoined twins always identical and same-sex?

2. Where does the term "Siamese twins" come from?

3. Complete the following sentence:
   - Conjoined fetus develops because ....

4. Are these sentences **T** (true) or **F** (false)? Correct the false sentences.
   a. Identical twins are rare.
   b. The first case of conjoined twins was recorded in the 20th century.
   c. Some cases of conjoined triplets have been recorded.
   d. It is possible to identify pairs of conjoined twins during prenatal examination.
   e. There are still ethical problems concerning the separation surgery of conjoined twins.

T	F

Word Forms

A *Work in pairs and complete this table.*

B *Complete each sentence using one of the words from the table. Make any changes that are necessary.*

1. If at first you don't _____, try, try again.
2. Japanese industry is making _____ use of robots.
3. The children were _____ by toys in the shop window.
4. Her _____ to retire surprised me.
5. _____ of the new building is taking longer than expected.
6. The disease is thought to have _____ in the tropics.
7. The baby had to be _____ by Cesarean operation.

Verb	Noun	Adjective	Adverb
Originate			
		Complete	
	Success		
			Decisively
Deliver			
	Increase		
Fascinate			

Logical Sequence of Sentences

Put the following sentences in the right order to form a paragraph. Write the corresponding letters in the boxes provided.

a. These often result in a successful pregnancy, sometimes of twins — but also sometimes of triplets (three babies), quadruplets, quintuplets, and even sextuplets!

b. Another common method of conception is in vitro fertilization.

c. For couples who have difficulty conceiving a baby, there are now a number of possibilities.

d. In such multiple births, the babies are born early, before they are mature enough, and almost always have many painful, expensive physical or mental challenges.

e. One is the use of fertility drugs.

f. By this method of conceiving a baby outside a woman's body, childless couples may still become parents.

"We all live under the same sky,
but we don't all have the same horizon".

— Konrad Adenauer

Communication Skills
(At a Drugstore)

A. *Work in pairs and check the correct sentences to make conversations.*
B. *Take turns asking and answering questions.*

1. **Pharmacist:** ☑ Can I help you?
   ☐ Should I help you?
   Customer: ☐ Yes. Can I have a package of bandages?
   ☐ Yes. I suggest a package of bandages.
   Pharmacist: Here you are.
   Customer: ☐ And what do you need for a sunburn?
   ☐ And what do you have for a sunburn?
   Pharmacist: ☐ Do you suggest this lotion?
   ☐ I suggest this lotion.
   Customer: Thanks.

2. **Pharmacist:** Hi. Can I help you?
   Customer: ☐ Yes. Can I suggest something for sore muscles?
   ☐ Yes. Could I have something for sore muscles?
   Pharmacist: ☐ Sure. Try this ointment.
   ☐ Sure. Could I try this ointment?
   Customer: ☐ Thanks. And what should you get for the flu?
   ☐ Thanks. And what do you suggest for the flu?
   Pharmacist: ☐ Can I have some of these tablets? They really work.
   ☐ Try some of these tablets. They really work.
   Customer: ☐ OK, thanks. I'll take them. And you should get a box of tissues.
   ☐ OK, thanks. I'll take them. And could I have a box of tissues?
   Pharmacist: Sure. Here you are.

Learn How to Learn

READING VISUAL AIDS

College textbooks, and many magazines and newspapers as well, contain not only printed information, but also *visual aids*, such as graphs, tables, diagrams, and pictures. These visual aids are not simply page decorations, something you can skip. *The general purposes of visual aids are to explain processes, condense detailed information, compare related ideas, show change over time, or otherwise support the text.*

You would do well to follow some general guidelines in order to understand visual aids. Here are some helpful tips :

- Get an overview of the entire visual aid by observing the printed title, caption, units of measurement, terms used, years covered, etc. You want to get an overview of the visual aid.

- Now carefully read all printed information. This may include what is called a *legend*. A legend is an explanatory caption, table, list, or chart found on or next to the visual aid. The legend gives information that helps you interpret the meaning of the visual aid.

- Next, carefully study the actual visual aid for details.

- Try to see what relationships exist between the words and pictures.

- To check your understanding of the visual aid, try to summarize the information in a few sentences.

Improve Your Medical Vocabulary

Things on the Ward

Write the number of each description next to the correct word

sheets	---10---	bedpan	----------	wheelchair	----------
mattress	----------	tray	----------	pillow	----------
crutch	----------	bedspread	----------	call button	----------
trolley	----------	observations chart	----------	blanket	----------
vase	----------	oxygen point	----------	basin	----------
curtain	----------	urine bottle	----------	name band	----------
drip stand	----------	hoist	----------	monkey pole	----------

1. This covers the bed to keep off the dust.
2. To rest their head on.
3. A patient confined to bed will have to use this to urinate and defecate.
4. Patients use this when they need to call a nurse.
5. For identification, this is worn by patients around their wrist.
6. A narrow bed for transporting patients.
7. Wash your hands here.
8. A mechanical device for lifting and moving patients.
9. Drawn around a patient's bed to provide some privacy.
10. Two of these on the bed are straightened regularly and washed every few days.
11. Meals are brought to the bed on this.
12. These keep the patient warm.
13. Male patients confined to bed use this to urinate.
14. Suspended above the bed, this can be used by the patient to pull herself up.
15. Patients lie on this, it's sometimes hard and sometimes soft!
16. Intravenous fluid bags are suspended on this.
17. Patients who can sit up comfortably can be transported in one of these.
18. A patient with a broken leg will need two of these to get around.
19. For flowers.
20. A mask and tube from this will supply oxygen to the patient.
21. The patient's condition is recorded here.
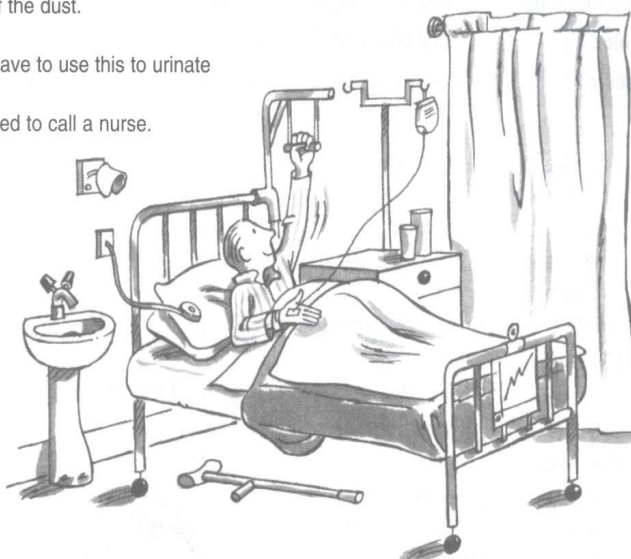
THE TRAGEDY OF SISTERS FROM IRAN
LALEH & LADAN

Track 8

Before You Listen

A. Vocabulary Preview *Discuss the new vocabulary, then complete the sentences below. You may change the forms of some of the words.*

operation (n)	action performed by a surgeon on any part of the body, to treat or remove by cutting a diseased or an injured part
saggital (n)	a plane or section that divides a structure into right and left portions
separate (adj)	being apart and not connected
ethics (n)	moral beliefs and rules about right and wrong
vein (n)	tube in your body that carries blood from all parts of the body to the heart

1. The Bijani sisters had .... brains but shared an important blood vessel in the head.
2. I am reading a book on medical ....
3. The .... sinus vein extends from forehead across the top to the back of the head.
4. Doctors say tests done before the .... showed a medical reason for the surgery.
5. .... is a vessel that carries blood toward the heart.

B. Discussion

Look at the pictures. Do you know who they are? Share whatever you know about them with the class.

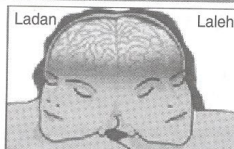What they wanted was to be able to look each other in the eyes without using a mirror
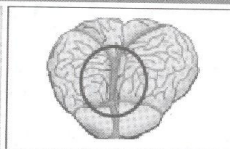
Listen

A. *Answer the following questions. Then listen and check your answers.*

1. How long did Laleh and Ladan live?..
2. What did they do? ....
3. Where were they from?..
4. What health problem did they have? ....

SEPARATING THE TWINS

Ladan and Laleh Bijani had separate brains inside a single skull

The twins shared a vein carrying blood away from their brains

Surgeons hoped to take a graft from a leg vein and use it to create a new vein allowing blood to flow from separate brains

But when attempting to separate the brains, surgeons found they had become tightly fused together

SOURCE: Raffles Hospital

**B.** *Choose the correct answer. Then listen and check your answers.*

The operation last week in (1)_____ (*Singapore / Malaysia*) was the first known attempt to separate (2)_____ (*children / adults*) joined at the head. The saggital sinus (3)_____ (*artery / vein*) extends from forhead across the top to the back of the head. The doctors (4)_____ (*planned / planning*) to give the vein to one of the (5)_____ (*assistants / twins*) and build a new one for the other with a vein (6)_____ (*joined / taken*) from the leg. During the operation the two sisters began to (7)_____ (*loss / lose*) blood pressure and died of blood (8)_____ (*lose / loss*) within (9)_____ (*ninety / nineteen*) minutes of each other.

C. *Listen and answer the following questions.*

1. The two sisters knew that the operation may end in death.
2. There was no medical reason for the surgery.
3. Experts in medical ethics approved of Raffles Hospital's decision to operate on the twins.

Pre-reading activities
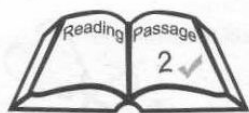
Heart Disease and Changing Attitudes

Reading passage 2 ✓

Before You Read

A. Vocabulary Preview

1) *Discuss the new vocabulary, then complete the sentences below. You may change the forms of some of the words.*

associate (X with Y)(v)	connect X with Y
tend (v)	something that tends to happen is something that often or usually happens
nutrition (n)	food and its effect on the body
expert (n)	a person who has a lot of knowledge or skill in certain subject
sufficient (adj)	enough; adequate
rely on something (v)	depend on something; trust

1. Smokers .... to have more health problems than non-smokers.
2. .... agree that good .... is necessary for health. If you eat the wrong types of food, your health will suffer.
3. Nowadays we .... increasingly .... computers for help.
4. Do we have .... food for ten people?
5. Scientists have found that smoking is .... with lung cancer.

2) *Which of these words go before 'heart' and which go after?*

disease	man-made	attack	transplant	strong
surgery	surgeon	artificial	operation	donor

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

B. Discussion

1. Is there any relationship between heart disease and the way we live?
2. What kind of lifestyle may cause heart disease?
3. What kind of diet may cause heart disease?

B. Discussion

1. *Fill in the following boxes with as much information as you can.*

What I Know about AIDS	What I want to know about AIDS

During reading activities

📖 Read

Read this passage as many times as you need to. However, during your first reading, you should:
1. *Stop reading at the end of each sentence that contains boldface words, and complete the comprehension building task in the left margin. Then continue with your reading.*
2. *Try to identify the most important idea the writer wants to communicate to you in this passage.*

Ethical Questions in Health Care

Draw a simple cause-effect diagram as you read this paragraph.

How dose ' however ' help you predict the next sentences and ideas?

It refers to ....

Check back for the meaning of situations like these.

What is this second question? Check back.

In the past ten years, advances in medical technology have enabled doctors to treat medical conditions that they were not able to treat **before**. For many patients, the new technology has brought new life and new hope. For the medical profession and for society, **however**, it has also created a number of very difficult ethical and moral problems.

Even with the new technology, doctors are often not capable of improving the condition of their patients; in these cases, the new machines merely prolong life instead of improving **it**. Sometimes conscious patients continue to live and suffer because they are kept alive by machines. There are also other patients in U.S. hospitals who have been unconscious for long periods of time because parts of their brain are not functioning. They are kept alive by modern drugs and life-support systems, but there is often little or no chance of recovery. **Situations like these** are forcing us to reconsider our ideas about the goals of medicine. For example, is one goal to prolong life, regardless of the quality of that life? Alternatively, are there circumstances where doctors can stop treatment and allow the disease to reach its natural end— often the death of the patient?

Many people in the United States answer **this second question** with a definite "Yes." They believe that a patient's survival regardless of the circumstances is absolutely not the goal of medicine. Many state legislators agree, and many states now define death in a way different from the traditional way. According to the law in these states, a patient is dead when certain parts of the brain stop functioning, not when the heart stops. And in more than twelve states, patients can now request their doctors not to prolong their lives if they have no hope of recovery.

Post-reading activities

After You Read

Main Idea Check

Choose the sentence that best expresses the main idea of the passage.

a. There is disagreement in the United States about a question that is raised by modern medical technology: Should we prolong life in all circumstances?

b. Although medicine has benefited greatly from modern technological advances, doctors are still not capable of improving the condition of all their patients.

c. A lot of people in the United States believe that it is always wrong to stop giving treatment to incurably ill patients.

A Closer Look

1. In your own words, complete this cause-effect diagram to show the cause-effect relationships that are examined in the first paragraph of the passage.
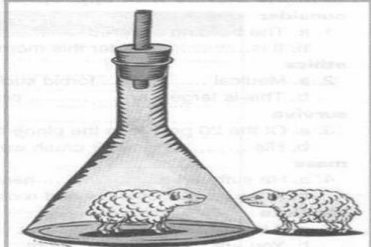
$$ C \longrightarrow \boxed{E_1} \quad \boxed{E_2} $$

2. Technology has brought considerable benefits to medicine.

3. Everyone agrees that one goal of medicine is to prolong life in all circumstances.

4. According to the traditional definition of death, a person is dead...... .

   a. when the heart stops beating

   b. when certain parts of the brain stop functioning

   c. when the patient has no hope of recovery

5. The writer describes the different opinions of two groups of people. What is the opinion of the first group of people the writer mentions in the passage?

   a. There are circumstances in which a patient can be allowed to die without more treatment.

   b. The duty of a doctor is to prolong a patient's life, regardless of the circumstances.

   c. It is dangerous to give people the right to decide that a patient is not to receive any more treatment.

6. What side does the writer support in the discussion that is described in paragraphs 2, 3, and 4 of this passage?

   a. The writer clearly agrees with the people who believe that patients must be kept alive in all circumstances.

   b. The writer does not make his opinion clear.

   c. The writer clearly agrees with the people who believe that incurably ill patients have the right to ask for their treatment to be stopped.

What Do You Think?

Imagine you are working in a health-care system with very limited resources. You have two patients who are suffering from incurable kidney disease. One is a twenty-year-old female student who is studying biology. The other is a fifty-five-year-old female biology researcher. Finally you have available one kidney that is suitable for transplanting into either patient. What do you decide, and why?

Word forms

Word Forms

A. Work in pairs and complete this table.

B. Complete each sentence using one of the words from the table. Make any changes that are necessary.

Verb	Noun	Adjective	Adverb
suffice			
		aware	
associate			
encourage			
		mere	
	success		
benefit			
	nutrition		
diet			
		regular	

1. Scientists have found evidence that smoking is .... with lung cancer. However, cigarette producers do not accept that there is an .... between lung cancer and cigarette smoking.

2. a. Doctors say that exercise is important for health, but it must be .... exercise.

   b. You should attend the class ....

3. a. For healthy nutrition, it is not sufficient .... to choose food with low cholesterol. You also need to reduce the amount of fat in your meals.

   b. She is a .... child.

Logical sequence of sentences

Put the following sentences in the right order to for a paragraph.

a. Clots develop in the legs when blood cannot move easily back to the heart.
b. This condition is called deep vein thrombosis.
c. People who travel on long trips should know about a condition that can develop deep inside the legs.
d. A thrombosis is a blood clot, a condition when some blood thickens and blocks the flow.

   1. _____   2. _____   3. _____   4. _____

Speaking (communication skills)

Communication Skills
(Taking Family and Social History)

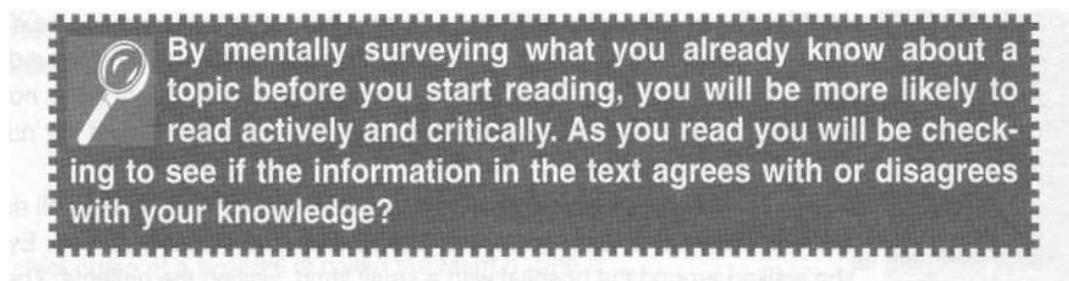A. Match the question with the answer. Write the letters in the puzzle.
B. Take turns asking and answering questions.

1. Can I ask how old you are?
2. How long have you been married?
3. Do you take any exercise?
4. Have you ever had an X-ray of your chest?
5. Can I ask you about your parents?
6. What did your father die from?
7. Have you ever lived in a tropical country?
8. Is there anything which is worrying you at the moment?

a. I cycle to work normally.
b. About twenty a day.
c. I'm not sure, just old age I think!
d. Yes, I worked in East Africa for two years.
e. I'm fifty-five.
f. When I was fifteen, I think.
g. Yes, but it was a long time ago.
h. One or two glasses of wine each day.
i. I work in a clothing factory.
j. I think I only had measles.

Learn how to learn & study skills

By mentally surveying what you already know about a topic before you start reading, you will be more likely to read actively and critically. As you read you will be checking to see if the information in the text agrees with or disagrees with your knowledge?

Improve your medical vocabulary

So, how can these transitional groupings help you read for meaning? The answer is simple: As you become aware of transitional connectors, you should become aware of your powers of prediction. Transitions help you follow a writer's train of thought and predict what he or she will say next.

Exercise

Using your knowledge of connectives choose the correct answer in each of the following sentences.

1. The present birth rate is increasing and the death rate is decreasing. ....
   (*In contrast / As a result*), the world's population is growing at a frightening pace.
2. He gets ten hours of sleep each night, ... (*yet / also*) he always seems tired in class.
3. Betty is pretty; .... (*for instance / moreover*), she is wealthy.
4. There was no reason for him to stay any longer, ... (*so / however*) he returned to his home.

As you discovered from doing the *Exersice*, transitions help you predict what is coming and this can make you comfortable and confident with your reading.

Improve Your Medical Vocabulary

Giving Instructions

Fill in the missing words in the following instructions. Choose from the box.

bend	close	grip	lie	open	relax	roll	show	stretch	touch
clench	cough	hold	lift	read	rest	say	stand	take	turn

1. Can you ..clench.. your fist?
2. .... me your hands, please.
3. Could you .... your mouth?
4. Just .... your arm, please.
5. .... a deep breath.
6. .... Aaaah!
7. .... the bar tightly!
8. Can you .... the letters?
9. .... , please.
10. Can you .... your leg?
11. .... as far as you can!
12. Can you .... your toes?
13. Can you try to .... on one leg?
14. Can you .... over, please?
15. You can .... your mouth now!
16. Could you .... down, please?
17. And .... your breath!
18. Just .... up your sleeve, please!
19. Can you .... your arm here?
20. Don't worry!................!

Word Roots

Match up the roots with the part of the body. Notice that some parts of the body use two or three roots.

aur- ~~brachi~~ - bucca- capit- carp- cephal- cervic- cheir- corpor- dactyl- digit- faci- mamm- man- mast- nas- ocul- ophthalm- or- ot- pect- ped- pod- rhin- somat- steth- stom(at) - thorac- trachel-

Parts of the Body	Root		Your Example
arm	brachi-		....
body	....	....	....
breast	....	....	....
cheek	....		....
chest	....	....	....
ear	....		....
eye	....	....	....

Pre-listening activity to raise schematic knowledge

Sample 2

Heart Disease in Women

HEALTH REPO
February 18, 200

Track 2

Before You Listen

Read each question and place your answer in the "pre-check" column.

Questions	Pre-check			Post-check		
	T	F	uncertain	T	F	uncertain
1. Breast cancer is the leading cause of death for women.			uncertain			uncertain
2. Cardiovascular diseases are the diseases of the heart and blood vessels.			uncertain			uncertain
3. Hormone replacement therapy is used for woman who can still have children.			uncertain			uncertain
4. Hormone replacement therapy is not recommended as a way to protect the heart.			uncertain			uncertain
5. Women should talk to their doctors about the risk of heart disease as young as the age of 30.			uncertain			uncertain
6. women at intermediate or high risk of heart disease should consider taking an asprin each day.			uncertain			uncertain

Listen

Now listen to the report. Read the questions again and place your answers in the "post-check" column.

Two examples of integration of reading & listening:

Example one:

Read & Listen

A. *Read this report quickly, ignoring the missing paragraphs. Then read paragraphs A-E and choose the one that fits each gap in the text (1- 4). There is one extra paragraph which you do not need. An example is given (1).*

Two diseases common in children in developing countries can be treated and prevented. Yet the fight against malaria and diarrhea has become a struggle for health workers. One of the main reasons is the incorrect use of medicines to treat these diseases.

(1) **C** Diarrhea is an intestinal disease. It can be caused by food that has gone bad or was not cooked well, or by water that is not clean. It is a major killer of children under the age of five. Survivors often face problems with growth and development.

Children may get diarrhea several times a year. As soon as they appear to have it, antibiotic medicines are often given. Antibiotics are designed to kill bacteria.

(2)

Diarrhea usually kills through the loss of water from the body. So it is important to get enough fluid. There are special powders to mix with water to help children regain their strength.

(3)

Last year the WHO released oral rehydration salts with a new formula. The agency says the low-sodium, low-glucose formulation will reduce the severity of diarrhea and vomiting.

(4)

Experts say breastfeeding reduces the risk of diarrhea in babies. And improving cleanliness in homes and communities — such as washing hands before touching food — can also help in prevention.

A. A group called the Rehydration Project has more information on its Web site. The address is rehydrate dot o-r-g.

B. But experts say antibiotics are usually not the best treatment for diarrhea. In fact, using antibiotics when they are not really needed creates another problem —anti-microbial resistance. Germs learn to fight medicines that are used too often.

C. Diarrhea is an intestinal disease. It can be caused by food that has gone bad or was not cooked well, or by water that is not clean. It is a major killer of children under the age of five. Survivors often face problems with growth and development.

D. In nineteen-ninety-one, a study at a hospital in Kenya looked at children who died of malaria. It found that the death rate for those treated with chloroquine was twenty-five percent. The death rate for those treated with other drugs was ten percent.

E. One product is a solution of sodium and glucose called oral rehydration salts. Sodium and glucose are more commonly known as salt and sugar. As a result of this product, the World Health Organization says the death rate which had been five million a year has dropped sharply.

B. *Listen to the report and check your answers.*

Example two

A. Multiple Choice Cloze:

Read the report. In each paragraph some words are missing. Fill in the blanks using the words in the left margin.

Heart Disease in Women

vessels /but / strokes /of

Studies show that many American women believe breast cancer is the biggest threat to their health. (1) ...... more than ten times as many women die (2)...... cardiovascular diseases. These are diseases of the heart and blood (3)...... . Heart attacks and (4) ...... are the leading killer of both men and women.

each / yet / of / kills / In / about

Breast cancer (5) ...... about forty-thousand women in the United States (6) ...... year. But heart attacks and strokes kill (7) ...... five-hundred-thousand. (8) ...... fact, fifteen percent more women than men die of cardiovascular disease. (9) ...... many people still think (10) ...... it mainly affecting men.

in / guidelines / journal

The American Heart Association has new (11) ...... to help prevent heart attacks and strokes (12) ...... women. It published the guidelines in Circulation: the (13) ......of the American Heart Association.

shown / good / example / use / protect / children

For (14) ...... , the guidelines urge women not to (15) ...... hormone replacement therapy as a way to (16) ...... the heart. Hormone replacement is for women past the time when they can have (17) .... But recent studies have (18) ...... that it may do more harm than (19) ....

B. Now listen to the report and check your answers.

Sample listening activity

B. Vocabulary and Structure

I. *Read the following text and choose the correct answer.*

These include slowness of (1)_____ (*moving / movement*), shaking of an arm or leg, or (2)_____ (*severity / severe*) difficulty in moving the arms and legs. Another (3)_____ (*symptom / symbol*) is diffi-culty walking and staying (4)_____ (*balanced / equal*). Other signs may (5)_____ (*include / including*) restricted or decreased movement of the face. People may swallow (6)_____ (*little / less*) often than nor-mal. And they may have trouble (7)_____ (*form / forming*) words when they talk. (8)_____ (*However / Also*), victims may feel extremely sad or worried.

II. *Now listen and check your answers.*

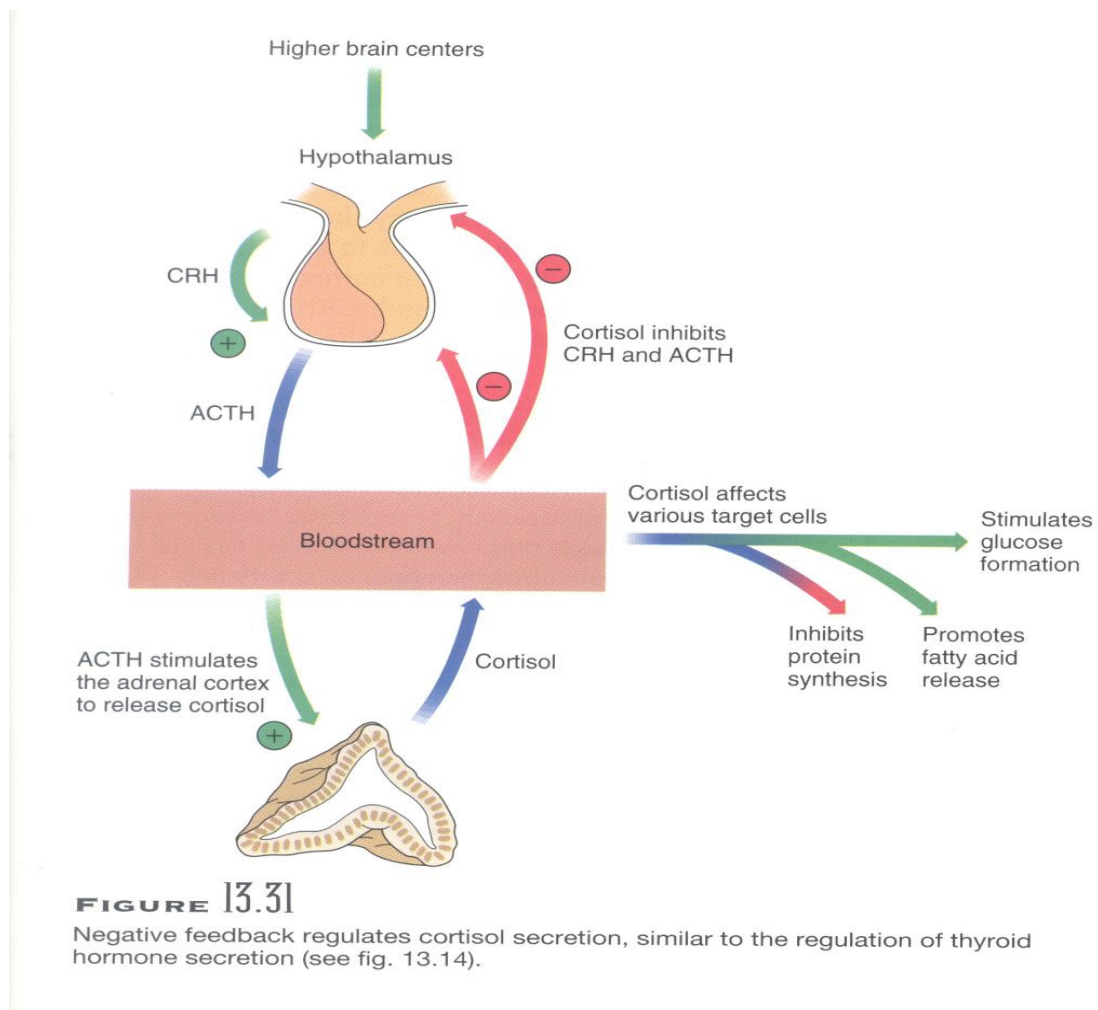**C.** *Listen to the report and fill in the blanks in the following table.*

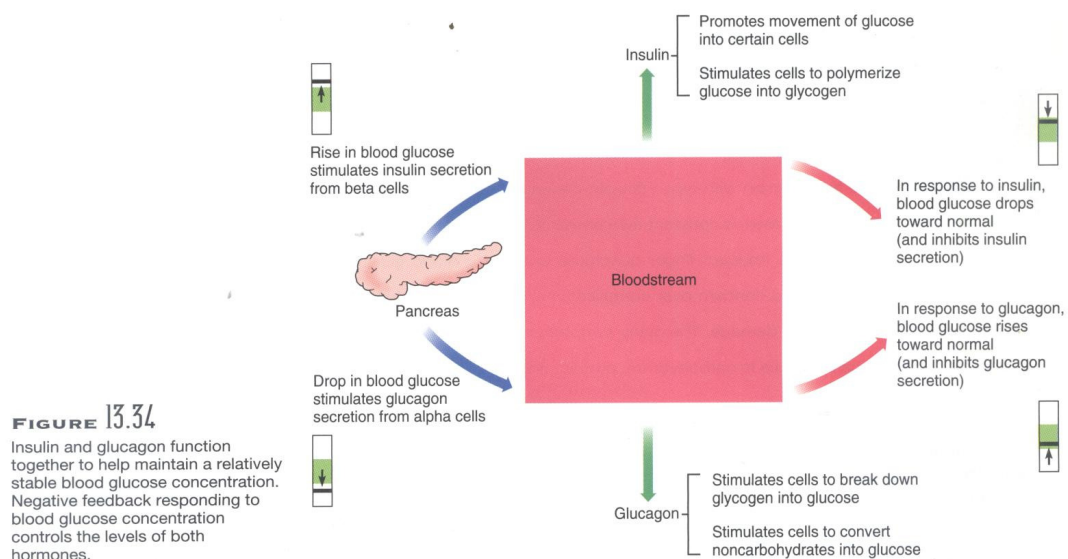| The functions and disadvantages of different treatments developed by medical research		
Treatment	**Function**	**Disadvantages**
1. Levadopa	It replaces the natural (1)_____ in the brain. It helps (2)_____ the signs of Parkinson's.	It does not prevent brain (3)_____ damage
2. Placing (4)_____ devices in the brain.	These devices (5)_____ cells that cause unwanted body (6)_____ .	Possibility of (7)_____ .
3. (8)_____ damaged brain tissue. Early experi-ments used cells from (9)_____.		Caused (10)_____ among people who oppose the (11)_____ of unwanted pregnancies.
4. Naturally produced (12)_____ factor G-D-N-F.	(13)_____ levels increased in the brain, and (14)_____ and (15)_____ movement improved.	
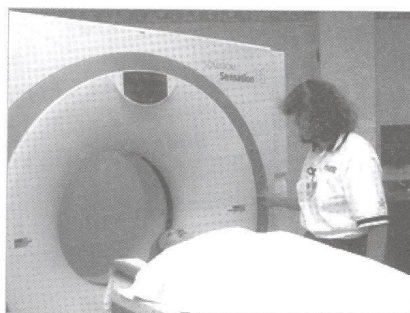
Writing:

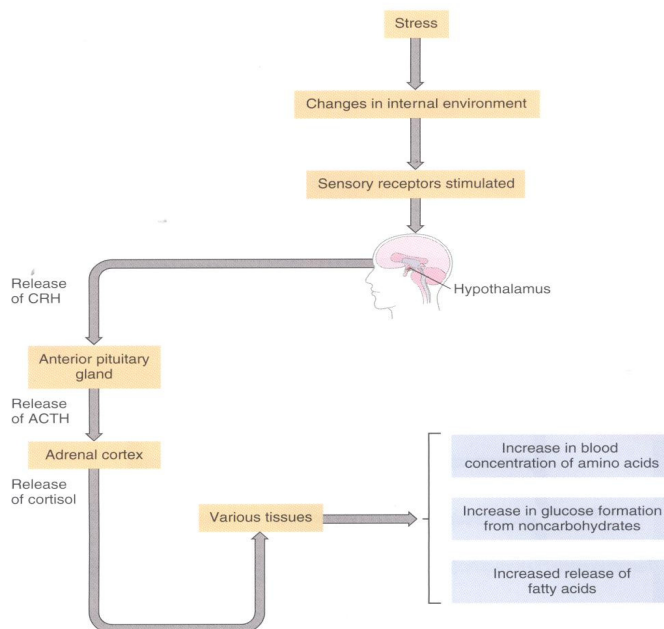**1. Study the following processes and write a short summary. You may refer to your background knowledge and the reading text**

A.

FIGURE 13.31

Negative feedback regulates cortisol secretion, similar to the regulation of thyroid hormone secretion (see fig. 13.14).

B.

Promotes movement of glucose into certain cells

Insulin

Stimulates cells to polymerize glucose into glycogen

Rise in blood glucose stimulates insulin secretion from beta cells

Pancreas

Bloodstream

In response to insulin, blood glucose drops toward normal (and inhibits insulin secretion)

In response to glucagon, blood glucose rises toward normal (and inhibits glucagon secretion)

Drop in blood glucose stimulates glucagon secretion from alpha cells

Glucagon

Stimulates cells to break down glycogen into glucose

Stimulates cells to convert noncarbohydrates into glucose

FIGURE 13.34

Insulin and glucagon function together to help maintain a relatively stable blood glucose concentration. Negative feedback responding to blood glucose concentration controls the levels of both hormones.

C.

Stress

Changes in internal environment

Sensory receptors stimulated

Hypothalamus

Release of CRH

Anterior pituitary gland

Release of ACTH

Adrenal cortex

Release of cortisol

Various tissues

Increase in blood concentration of amino acids

Increase in glucose formation from noncarbohydrates

Increased release of fatty acids

FIGURE 13.36

As a result of stress, the hypothalamus stimulates the adrenal cortex to release cortisol, which promotes responses that resist the effects of stress. Compare this to figure 13.31.

Speaking:

Compare and contrast thermostat to homeostatic mechanism
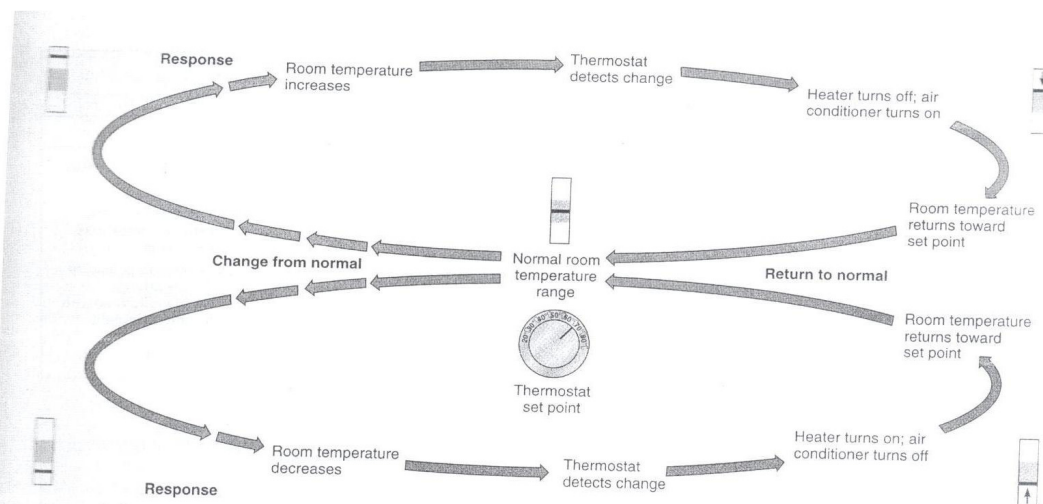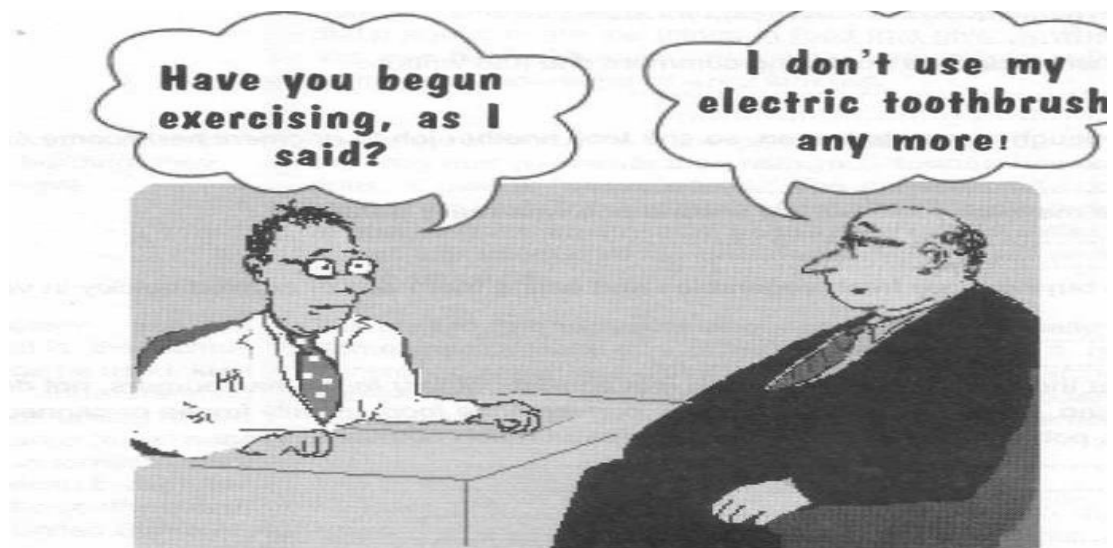

FIGURE 1.4

A thermostat that can signal an air conditioner and a furnace to turn on or off maintains a relatively stable room temperature. This system is an example of a homeostatic mechanism. The icon indicates how the actual value (black bar) compares to the normal range (green zone).
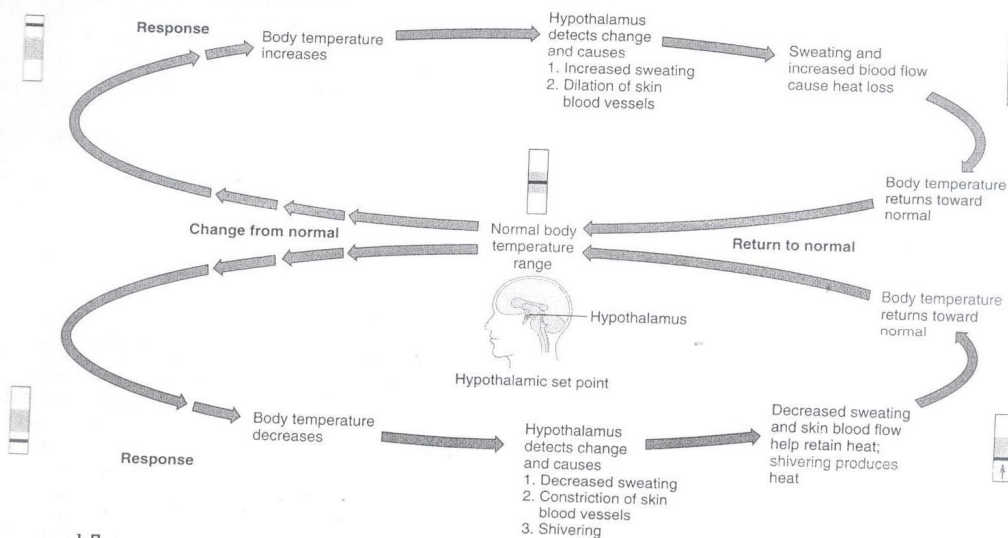
FIGURE 1.5

The homeostatic mechanism that regulates body temperature is an example of homeostasis.

CHAPTER ONE Introduction to Human Anatomy and Physiology

Quotations to ponder & sense of humor

"Tell me, I'll forget. Show me, I may remember. But involve me, and I'll understand."

CHAPTER 6
COHERENCE: LOGICAL SEQUENCE OF IDEAS

PROCEDURAL KNOWLEDGE

Toward Autonomy

CHAPTER 6 Coherence: Logical Sequence of Ideas

CHAPTER 5 Identifying Main Ideas

CHAPTER 4 Cause & Effect Patterns

CHAPTER 3 Comparison and Contrast Patterns

CHAPTER 2 Dealing with Unknown Vocabulary

CHAPTER 1 Cohesion: Making Connections

DECLARATIVE KNOWLEDGE