

EAP Needs Analysis in Iran: The Case of University Students in Chemistry Department

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Abstract—Needs specification and analysis are important factors that need to be explored and discussed in language teaching program. Regarding this, an EAP program should be built on both investigating learners' purposes and assessing their needs. The objective of this study was to investigate chemistry students' and instructors' perceptions of the English language needs of these chemistry students. 90 chemistry students and 20 instructors at the Chemistry Colleges of Guilan and Tehran, Iran, were selected. They were asked to fill questionnaires which aimed to tap these participants' views on (a) the prominent statues of English language usage in learners' studies and their upcoming professions; (b) fundamental English abilities required in English educational course; and (c) propositions for improvement of an English language program. Findings obtained from all respondents showed that in terms of academic studies and future works, English is perceived as very important. Similar to their instructors, the students asserted reading in place of the highest skill. They also rated vocabulary and reading speed as the main and writing and reading skills as the slightest importance areas required for their studies. Regarding the third query of the study, the majority of respondents suggested the curriculum that postulates general English in first term heading for three years of particular selective English. The study has implications for improvement of EAP language courses in upper instruction and progress students' English ability for their academic and specialized needs.

Index Terms—English for specific purpose, English for academic purpose, need analysis

I. INTRODUCTION

In the current era of science and technology expansion, increasing demands for international communication, exchanging, and progress have made English language learning an essential tool required by many people around the world in general and students of universities in particular. For example using different websites, sending formal, educational emails and reading many scientific papers as sources. Such needs basically impressed the content matter, the skills and strategies which are enclosed in English for academic purpose (EAP) or English for specific purpose (ESP). Widdowson (1981) describes the overall idea of ESP by declaring that "if a group of learners' needs for a language can be accurately specified, then this specification can be used to determine the content of a language program that will meet these needs."

In fact there are differences between ESP and general English which lies on "awareness" of needs not "existence" of needs. Awareness about why learners need English will have an influence on the selection and inclusion of the reasonable content of these courses as well as on the exploitation of the course potentials (Hutchinson and Waters, 1992).

Therefore, giving such emphasis for the language needs of learners based on the analysis of the linguistic characteristics of their specific area of learning and occupational language purposes gained broader acceptance that mostly focus more on learners; i.e. "taking the various needs, interests and attitudes of the learner in the teaching learning process and these will have a paramount significance in motivation of learners" (Rodgers, 1969, as cited in Hutchinson and Waters, 1987, p. 8).

However, one common way for practicing English in most of these courses/classes is grammar translation method which has gained some part of its popularity from rote memorization to master grammatical structure. In fact, the more reliance upon the rote memorization, the less attention is needed to be paid to the oral skills of language needed for the job condition in that the students will need their learning to function effectively (e.g. *target needs* (Hutchinson and Waters, 1987); *communication needs* (Richards, 1990)).

As Richterich (1984, p.29) comments: "... a need does not exist independent of a person. It is people who build their images of their needs on the basis of data relating to themselves and their environment". Moreover, an ignorance of speaking and listening skills within the EAP/ESP courses is partly associated with the least rate to which these skills are concerned by the EAP/ESP exam. as a result, the learners do not spend much more time and energy on oral based skills like speaking and listening. Nowadays, ESP students in Iran experience a rather traditional, form-focused L2 instruction which, in turn, provides students with little opportunity to use English communicatively (Farhady and Hedayati, 2009).

ESP programs specifically EAP as a branch of it concentrate on the use of language in context rather than mere teaching of grammatical structures of language varying from accounting, computer or chemical sciences to business and management. EAP classes vary in their form as well as their length of instruction (Jordan, 1997). Thus, the type of skill most needed and the extent to which they are covered in the EAP/ESP courses can be determined through need analysis carried out in these courses/classes than practicing equally on four language skills as a general background for English and this can help practitioners design a suitable syllabus for students.

Robinson (1991) believes that "the concept of learners' needs is one of the essential criteria which is adopted and validated in ESP" (P. 3). Hence, the subject matter should be based on students' needs, and course organizers should recognize the ways in which ESP fits the ESP learners' needs. Purpura and King (2003), and Santopietro and Peyton (1991) argue that ESP needs analysis must be taken as a procedure of collecting and analyzing the required data about the 'target language needs' of the students. This paves the way for the learners to apply the terminology and grammars that they have learned in a significant situation, also leads them to improve their acquired English needs in specific context.

Identification and analysis of learners' needs, interests, and their purpose for EAP/ESP learning will facilitate setting learning objectives, and goals, setting up a positive language learning environment, enhancing learners' motivation, and evaluating their progress in specific ESP skill such as reading and writing.

Need analysis has been the focus of a number of recent studies though there are few researches carried out in this area (see for example, Atai, 2000; Khajepour, 1993; Gooniband, 1988; Eslami-Rasekh and Valizadeh, 2004; and Mazdayasna and Tahririan, 2008). While these studies highlight the significance of considering not only the learners' perspectives but also their instructors' perspectives, they raised lack of needs-based course design, instruction time, materials and methods, and evaluation of learning, "the challenges will necessarily involve developing true specific-purpose curricula based on learners' needs which would provide the appropriate context for sustainable language programs". (Eslami-Rasekh, 2010)

In this study, the English language needs of Iranian university students of chemistry were assessed in order to increase teaching and learning effectiveness for students of this field. Understanding of such needs is seriously needed in order to aid EFL (English as a foreign language) teachers to make decisions about what to teach and how best they can implement the educationally driven choices in ESP/EAP contexts. In this study we have chosen chemistry area as an important academic discipline whose students are in great need of different English skills and subject knowledge not only for their courses and learning objectives at BA levels but also for the number of academic international papers they are supposed to develop from their research studies carried out in different ESP/EAP contexts.

More specifically, the aim of the study was (a) to designate and explain the perception that chemistry university students and the instructors perceive about students' English language needs and (b) to offer some suggestions for English language curricula based on the survey results. For such a purpose, the Iranian EAP chemistry learners' perceptions of their needs were first examined, and then compared to their instructors' perceptions. More precisely, this study aimed to find the answers for the following research queries:

- 1) What are the EAP professors' opinions of English language needs in EAP courses?
- 2) What are the EAP learners' views of the English language needs in EAP courses?

II. ESP/EAP STATUS

When talking about the ESP, the most primary and fundamental issue to raise is the issue of needs analysis that Hutchinson and Waters (1987) acknowledged to be very necessary when designing ESP courses. They also believe that the main assumption underlying need analysis is to relate English course to learners' needs that might improve their motivation and make learning easier and sooner. Since the goal of an ESP course is to allow students to perform effectively in target situation (Hutchinson and Waters, 1987, p.12). Moreover, as long as the ESP courses are set up in order to do particular things (Chambers, 1986, p.45), identifying the target situation, then analyzing the needs related to target situation is really essential. Regarding to this Hutchinson and Waters (1987) believe that

"A truly valid approach to ESP must be based on an understanding of the process of language learning." actually in ESP courses, there specific vocabulary and structure that traditionally will be learned, but it is possible never used in target situation when the learners really need to use their learning language. Also it is clear that language really vary from one situation to another situation) we should "determine the features of specific situation and make these features the basis of learners' course." (p. 7).

There are some researches which have been conducted to highlight the ESP features. As an example according to Gatehouse (2001), ESP developers need to make sure that three skills are integrated in the ESP curricula to make them effective and facilitative to communicative functions within the occupational settings. They are the ability to use a) specific jargon of such occupational settings; b) a more comprehensive set of academic skills (e.g., carrying out research).

It can be concluded ESP should consider as an "approach" rather than "product", it has been teaching language through students' needs, it should be taught language for communicating objectives, it should include learners' characteristics, it should be implemented by teachers.

A. Need Analysis

Needs assessment is required means of conducting research before outlining and determining Lessons/materials/curriculum and it aids draw a profile of learners/classes in order to decide and prioritize the needs for which learners necessitate English (L2). (Richards et al, 1992, cited in Jordan, 1997, P.20)

Brown (1995) defines needs assessment as a process of gathering information through various activities and from different groups of informants to determine their particular learning needs. Such an important process gives the way for defining the objectives and goals of a course, which is the first step for developing an appropriate curriculum for the ESP courses. Having emphasized needs assessment, Robinson declares that a need analysis tends to identify what exactly students have to do through the medium of English.

Dudley-Evans and St. John (1998) point out that needs assessment can be considered as the cornerstone of ESP program. Various definitions of language needs have been suggested by researchers. Some of them have centered upon the language requirements of the students in terms of the 'target situation', in which students will need the language to function effectively (e.g. Hutchinson and Waters, 1987; Richards, 1990). Others have focused on needs that the learners require while they are in the process of learning the language (e.g. 'learning needs' referred to by Hutchinson and Waters, 1987; and 'Situation needs' defined by Richards, 1990).

Still others have focused on the students' own perceptions of their needs. Berwick (1989) called this 'learners' felt needs'. Finally, some other researchers have concentrated on the various perceptions of the learners' needs from the perspectives of teachers and graduates of the discipline or institution. Berwick (1989) called this 'learners' perceived needs. Several researchers have directed needs analyses to determine students' English language use requirements (e.g. Aguilar, 1999; Arik, 2002; Basturkmen, 1998; Braine, 2001; Boran, 1994).

Also the term of need help to cover a wide scope of desires, wants and lacks of something: 'It is palpable that "need" as a term is both unclear and inexact, This terminological inaccuracy has allowed a large amount of related but not equal items being commonly referred to as "needs", requests, or purposes and being subjected as if they were approximately alike.' (Chambers, 1980, P. 26). Arik (2002), for example, pointed to classify the academic needs of the students attending various faculty and college programs from the perspectives of the discipline teachers. Taillefer(2007) cited by Atai (2011) evaluated the occupational language needs of economics graduates in a French milieu. The findings of study revealed that former students perceived the upper intermediate or advanced levels of all language skills were important in the work-related setting.

Consequently, students' awareness of their language abilities and capabilities, in fact, help them to feel successful or not. In this study university students of chemistry were selected because they have appeared not only to obtain their information from the original sources but also to present and publish considerable number of papers which necessitates good command of English for communicating in chemistry discourse community.

Accordingly, they should be able to tackle their present situation in order to deal with the necessity of what will be raised in future situations. It is significant that the learners of this discipline realize the importance of learning English at academic levels also the areas they are weak at.

B. EAP in Iran

The history of EAP (English for academic purposes), which is concerned with communication skills required for study purposes, in Iran traced back to more than thirty years ago, in 1984 with the establishment of the SAMT (the Organization for Researching and Composing University Text books in the Humanities) The main purpose of EAP has been to *enable the students to study their specific academic reference materials and text books to get familiar with scientific and technological advances in their field of study*, (Soleimani, 2003).

The main goal of the EAP programs at Iranian universities is to fill the imperfection between the learners' overall English knowledge and their capacity to read the specific texts in their own fields. Since in Iran English is for the most parts applied for educational aims, the EAP has a favorably significant role for Iranian students. After revolution in Iran either in order to avoid attaching to western culture or to get benefit of international language in science, teaching English was limited to EAP. EAP is considered as a kind of English that is used for academic purposes. However, teaching ESP has a marginal status in Iranian education In addition to this general requirement, depending on the needs of the students, they could take up to 4 units of EAP courses. (Atai 2002; Atai & Tahririan, 2003).

From the time when the Islamic Revolution (1978) occurred, an effort has been to find a unity in discipline-based EAP courses for colleges. Iranian Ministry of Science, Research, and Technology (MSRT) publish about 200 EAP book for different disciplines with the aim of providing EFL instruction wisely near to the students' wants in their own discipline. However, the presentation of materials is absolutely traditional and these books contained exercises and activities for all academic disciplines, each text followed by true-false, multiple-choice, comprehension and translation exercises. These books which are used for undergraduate students are based on a strict format assigned by SAMT, and basically focus on reading comprehension skill. But as a matter of fact, EAP courses should provide materials connected to the learners' requests in particular fields of study, and as a result improve the learners' level of language and the related content knowledge.

Furthermore, for the reason that the classes were not planned based on any methodical needs analysis, the EAP designer's aims do not appear to have been achieved (Tahririan, 1990; Atai, 2000; Eslami et al., 2007;

Mazdayasna and Tahririan, 2008; Farhady and Hedayati, 2009). In addition, the reading selections of these EAP textbooks are provided by technical and highly specialized language without providing any opportunities for students to use these technical words in the real life tasks (Atai, 2000; Faharzadeh, 2000; Mazdayasna, 2008; Mazdayasna and Tahririan, 2008). Meanwhile, one of the common classroom activities is translating texts from English to Persian. The way English is taught at the universities is usually translation oriented because the main objective is to enable learner in different majors to read and understand materials written in English in their own fields. Based on the research in this a common issue about the characteristic of EAP in Iranian universities is that it is absolutely traditional lacking systematic course design, the dominant teaching method is Grammar-Translation Method with importance of language rules and translation without any chance to use English for communicative purposes, and the instruction time and proper evaluation are not sufficient. (Farhady & Hedayati, 2009; Eslami-Rasekh, 2010).

Although many efforts by the government and course designers have put forward, EAP courses lack uniform course design and organized needs assessment from the perception of the program stakeholders and also systematic research on the programs itself. (Eslami-Rasekh, 2010). Students' requirements in different settings are varied and the analysis of requirements can be influential if the academic language needs are exactly defined and seek ultimate specificity within the specific target use (Deutch, 2003). The study fulfilled in order to identify Iranian EAP students' and instructors' perspectives of their English language learning requirements. Moreover, the study aimed to explore whether these two groups differed in the areas they perceived as the basic needs of Iranian EAP students of chemistry.

III. METHOD

A. Participants

As an important academic university discipline whose students have proven to be in great needs of English for their EAP studies, two available universities carefully chosen. This sample were randomly selected from the chemistry department of Guilan and Tehran Universities. The participants were 90 Students of chemistry department. This sample included 66 (73.3%) BA students and 24 (18.9%) MA and PHD 7 (7.8%) students of chemistry that 76.7% (69 students) of these participants were female, and 22.2% (20 students) were 17-20 years old, 62.2% (56) were 21-25, and 15.6% (14) were above 25.

In addition, 20 faculty members who has been teaching ESP/EAP were selected as well: 6 instructors were females and 14 males, 8 instructors with 1-5 years of experience in teaching, 11 instructors with 6-8 years of experience in teaching, and one with 11-15 years of experience in teaching.

B. Data Collection Instruments

In order to collect the data for needs assessment, the Questionnaire of Needs analysis adapted and employed by Chia, Johnson, Chia and Olive (1999) was used. Chia et al (1999). Developed this questionnaire based on two former study instruments that had been used by Zughouli and Hussein (1985) and Guo (1989). The adapted questionnaire was translated, conducted, and revised by chia et al (1999). According to the feedback giving by ten participants: six medical learners and four instructors from Chung Shan Medical College context in order to get assure of the validity and reliability of the instrument. This questionnaire finally consisted of 20 items making five sections that measure 'the prominence of English in university and professional professions', 'perception of language skill needs', 'the activities required in a language course', and 'propositions for development of course content and materials' as well as 'demographic information'. Chia et al (1999) used a united form of the questionnaire with questions marked at students *only* or *faculty only*. In this study, after translation and checking for both face and content validity, the questionnaire items were assigned into two relevant instruments. In other word, for letting participants feel easy in answering the questions, also for the point of more clarity, the initial Questionnaire of Need Analysis (QNA) was splitted into two halves: Students' version(16 items) and Professor version(14items) (see appendix A for the original questionnaire). It should be mentioned that modifications were done in order to change any word or phrases to suit the Chemistry context since the original questionnaire was used for Medical students by Chia et al. in 1999.

In this study the questionnaire was piloted with 30 representatives of final samples of the study, the reliability coefficients (Cronbach's alpha) of scales were 0.80 to permit the researcher to run the relevant subsequent statistical analyses of the study. The instruments were distributed among the participants who were finally 20 instructors and 90 students (which were included two groups of BA students and MA and PHD students) showing their content to take part in the survey rounds of the study.

C. Data Analysis

In this study, both descriptive and inferential statistics were used to describe and interpret the results related to the reported skills and components. The data were analyzed by computer using an SPSS (version 18). Students and instructors' responses were computed based on the survey data, measurements were calculated for all questions. Chi-Square and T-tests and ANOVA analyses were done in order to analyze the data of English language needs of chemistry university students and their instructors and to equate the perceptions across two groups.

IV. RESULT

4.1. The two research questions were to explore how the EAP instructors and students perceived the English language in EAP context. The results are presented through the following five important themes emphasized by these two EAP stakeholder groups.

The prominent statues of English for EAP studies and future job position

Regarding the items asking about the importance of English and its role in future career (English importance in current studies and future jobs Q1 and Q2), from the instructors revealed that English is very important for students of chemistry. Almost all of them (95%) rated them as the most important. Regarding the importance of the English ability for the future jobs / career, it was found that more than two thirds of the instructors (67%) considered it important and less than one-third perceived it as less importance. From students' point of view almost all students (99%) considered it 'important' and 'most important'. One-third of students 33.35% of the students thought English is important for their future jobs, and 62.2% considered it the most important similar to their instructors' view. This shows they are cognizant of the importance of English abilities for their future life. Only 4.4% of them did not perceive English important for their future jobs.

The scope to which the English is applied in courses/classes

In this theme these questions (the percent of the English written texts necessary for students Q3, concerning reports and research papers written in English Q4, In reply to Q5 writing test answers by students, language teaching in the class (Q6), and the percent of the reading coursework in the chemistry classes(Q7) were asked.

According to the instructors in answer to question 3, 50% of the books are written in English. The data showed that two-third of instructors only sometimes ask students write their projects in English but not always. 15% of them often make students to write in English, and the rest (15%) never ask students English writing. Out of the total instructors, one-fourth never ask their students to answer their tests in English modes but the rest of them sometimes (45% of the instructors) or often (30%) ask for English performance on tests. More than two-third (80%) of instructors present lecture in Persian but they use the English equivalent of chemistry items peculiar to the field. Less than one-fourth of them lecture in English.

More than half of the Instructors rated below 50% when they asked for the amount of English homework they assign to their students (question 4). 35% said they assign more English works to their students.

Results for item 7, regarding English reading course work, showed major differences among the groups (Table 1 & 2).

According to students' idea one-third of students thought that less than half of their Reading assignment is in English, another one-third of them thought two-thirds of their assignments in English, and the next one-third reported that most of their assignments are in English language.

15% of the instructors stated they did not specified the learners' reading course work should be in English necessarily.

TABLE 1.
MEANS OF READING COURSE WORK IN ENGLISH

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
BA student	66	1.7576	.80500	.09909	1.5597	1.9555
Instructors	20	1.6500	1.08942	.24360	1.1401	2.1599
MA & PHD	24	3.0000	1.06322	.21703	2.5510	3.4490
Total	110	2.0091	1.05357	.10045	1.8100	2.2082

In order to compare the ideas of each groups regarding reading assignments in English (which have divided into BA students, MA& PHD students, and instructors) one way ANOVA test was run.

The result showed that there were significant differences between groups ($p < 0.005$), $F(17.8, 2) = 0.00$). In response to this question MA and PHD students (mean=3.000), BA students mean=1.757, and instructors (mean=1.650) revealed that the PHD and MA students ideas were different from BA students and instructors regarding item 7.

TABLE 2:
RESULTS OF ANOVA FOR 'READING ASSIGNMENTS'

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	30.320	2	15.160	17.890	.000
Within Groups	90.671	107	.847		
Total	120.991	109			

Basic English Language Skills perceived to be as EAP course requirements

Qs 8-13 in original questionnaire elicited opinions about goals of the English language courses and the skills needed by the students. From instructors' views, 'reading chemistry texts' is 'the most important' and required ability for the students of chemistry. 85% of them rated it as the most important skill, and the rest (15%) rated it as important. Writing was the second 'important' skill they perceived necessary for students. More than two-third (70% of them) felt this skill as fundamental for students.

However, regarding 'speaking' and 'listening' skills, almost two-third of these instructors did not perceive them as necessary as the two skills of 'reading' and 'writing'. These oral skills (i.e. listening and speaking) were rated as 'unimportant' or 'least important' by instructors. In a similar vein, the student respondents also rated 'reading' as the most important and necessary skill. But regarding 'listening' skill, the ratings of two groups were not consistent. Unlike their instructors who considered writing as the second important skill, more than half of the BA students considered speaking as the second important skill to be acquired (Table 3). At the same time they regarded speaking as an important skill too.

Although 'listening' was not felt by the instructors as a necessary skill for EAP program, it was rated to be important by the BA students and almost important by MA and PHD students. Therefore, when the students were asked to show the reasons behind acquiring this skill, more than half of them believed they need this skill in order to make understanding of the 'Daily conversation' they encounter in the English contexts.

When the reasons for a higher rate of 'reading' skill perceived as necessary for EAP learning, reading and understanding their English course books as well as reading for obtaining information from their 'discipline-specific journals' were reported by majority of the students as the two essential reasons.

The reasons behind the acquiring 'speaking' skill seemed to be similar to the ones reported for 'listening'. In other words, More than half of the students feel they need this oral skill for successful practices of 'Daily conversation', oral presentation', and 'class reports'. Contrary to their professors' serious consideration of 'writing' skill, the students did not perceived this skill as a very basic skill to be acquired during EAP learning program. Only one-fourth (20%) of the students felt writing is basically needed for the development of 'research report'. To produce 'correct sentence/s' or 'discourse/s' was rated, by them, as the least important reason behind acquisition of writing skill.

TABLE 3.
STUDENTS' PERCEPTIONS OF THE BASIC ENGLISH LANGUAGE SKILLS

Grade		N	Mean	Std. Deviation	Std. Error Mean
Q4.Listening	BA student	66	3.0000	1.00766	.12403
	MA & PHD	23	2.7391	1.05388	.21975
Q4.Speaking	BA student	66	2.8636	1.16205	.14304
	MA & PHD	24	2.5417	1.10253	.22505
Q4.Reading	BA student	66	3.3788	.81835	.10073
	MA & PHD	23	3.3913	.98807	.20603
Q4.Writing	BA student	66	2.2424	1.06786	.13144
	MA & PHD	23	2.8261	1.11405	.23230

English Language proficiency needs observed in EAP courses

In addition to eliciting the perception data regarding the type of and the extent to which the English language skills should be included in English language courses, students' needs were also tapped from the two groups' perspectives. In response to questionnaire item 14 about which English languages skills are more important than the others for students chemistry studies that elicited this information from all three groups of participants (BA, MA,PHD students and instructors), a majority of the students (85%) rated 'reading' a the most important need that was succeeded by 'listening', 'writing' and 'speaking' as secondary(Table4).

Since the observed frequency did not seem to be sufficient for judging the differences between the participants ratings, the chi-square test of difference was run. The results (Table4) showed no important difference in the perceptions of the above mentioned groups ($\chi^2=2.24$; $df=2$; $P>0.05$).

TABLE 4.
PERCEPTION OF SIGNIFICANCE OF ENGLISH SKILLS FOR CHEMISTRY STUDIES

		N	Mean	Std. Deviation	Std. Error
Q10.Listening	BA student	66	2.7273	1.04580	.12873
	Instructors	20	2.1500	.93330	.20869
	MA & PHD	23	2.3913	.98807	.20603
	Total	109	2.5505	1.03178	.09883
Q10.Speaking	BA student	66	2.6515	1.03020	.12681
	Instructors	20	2.0500	1.23438	.27601
	MA & PHD	24	2.7917	.93153	.19015
	Total	110	2.5727	1.07053	.10207
Q10.Reading	BA student	66	3.4848	.76946	.09471
	Instructors	20	3.8500	.36635	.08192
	MA & PHD	23	3.5652	.94514	.19707
	Total	109	3.5688	.76215	.07300
Q10.Writing	BA student	66	2.2879	1.09214	.13443
	Instructors	20	3.2000	.89443	.20000
	MA & PHD	23	2.9565	1.18622	.24734
	Total	109	2.5963	1.13952	.10915

*For every ability, in ranking, 4 is most important, 1 is least important, so that the greater the mean, the more essential the skill.

TABLE 5.
CHI-SQUARE TESTS FOR DIFFERENCES BETWEEN RATINGS OF IMPORTANCE OF 'READING' SKILL

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.246 ^a	2	.523
Likelihood Ratio	2.510	2	.474
Linear-by-Linear Association	.542	1	.461
N of Valid Cases	83		

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is .41.

When asked which language areas are more problematic (item15) for their students, the respondents asserted 'vocabulary' and 'reading speed' as the two important areas causing problems for students' studies and 'writing' as the least important areas. the instructors believed in the limited vocabularies (or the limited lexicon knowledge) as well as the lower speed of reading as the two areas they perceived most difficult. Only 15% of them considered listening and writing as important as the vocabularies and reading speed, thus, they did not rated these two as significantly as they rated the two former.

About the significance of English skills for gaining achievement in the chemistry program (item16), more than two-thirds (75.6%) of students considered 'reading comprehension of their course book' and 'field-related articles' very helpful for their success this results are consistent with the results found from their views on basic skills to be included in their EAP courses When instructors were asked which skills they thought would bring success to the students when they study English for their specific purposes, almost all instructors (90%) believed that 'reading comprehension of their course books' and their 'field articles' are important, and 10% thought that oral presentations are useful as well.

English Language Course, Course Content, and Materials

The relevance of English materials used in the EAP classes with the topics and content of the students domain-specific discipline was appointed through (item 17 of questionnaire). More than two third of the students believed in relevance and the rest did not believe so.

In this regards 85% of the instructors also thought that the course materials must be related to chemistry in terms of the content, and the rest did not believe consequently.

Regarding the extent and degree to which this relevance should be observed in their EAP classes, more than half of the students rated almost 70% of the materials be written in English and used in their classes(item 18), however, one-fourth of them rated around half of their material be written in English. Similarly 75% of the instructors believed that the more than 50% of the materials should be based on chemistry issues and content, and 35% believed in less degree.

Both groups suggested that the EAP/ESP courses be obligatory, not optional (item 19). They thought this obligatory program with its relevant curriculum is effective for department of English language skills and competencies.

In other words, when their ideas about a useful and effective alternative program were asked, almost half of the instructors believed that EAP should be started from the second semester of the first year, and one-fourth of them thought it better if EAP starts from the second year (the first semester of the second year).

However, students' responses to this question were consistent. One-fourth believed EAP/ESP courses should be started from the second year, another one-fourth suggested second semester (first year), and still another one-fourth suggested a particular curriculum which is called 'English for Iranian university students' that is a curriculum in which all courses/classes in any major should be thought in English to Iranian university students.(see table6)

TABLE 6.
PERCEIVED BEST ENGLISH CURRICULA

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	English for Iranian Students	22	24.4	24.4	24.4
	General English in first year	3	3.3	3.3	27.8
	General English first year & Specific English the following years	23	25.6	25.6	53.3
	Specific English only	16	17.8	17.8	71.1
	General English first term & Specific English other terms	24	26.7	26.7	97.8
	6.00	2	2.2	2.2	100.0
	Total	90	100.0	100.0	

V. DISCUSSION AND CONCLUSION

Since learners' needs are very essential in the EAP courses, their identification and analysis become very ultimate to EAP course design. In this way, the EAP required strategies and skills can be resolute by analyzing the learners' needs. Therefore, "an ESP course should be based on a needs assessment of the learners" (Dudley-Evans and John, 1998). In addition, the instructor should be aware of learners' needs in order to identify them rather than sticking to grasp them by their intuition feelings which are traditional and cannot meet several needs of learners. Hutchinson and Waters (1987) add to that a needs-based curriculum in which the content of the course is chosen to meet the needs of the learners can most appropriately serve the educational objectives of the particular learners. Taking these into account, the present study aimed to identify and analyze the English language EAP needs of the chemistry students at the university levels to outline the perceptions that chemistry college students and instructors have of the English language needs of the students.

The findings obtained through the present needs analysis clearly showed that the participants, both students and instructors, considered English quite important for 'academic studies' in chemistry Discipline and important for 'future career' as well. Students had similar perceptions that were held by their instructors regarding 'Reading' as the most important skill for their studies. This finding is similar to the relevant findings of Atai (2011) in which knowledge of reading skill, knowledge of field-related vocabularies and terminologies, and understanding meaning of the main texts were perceived important for students' academic studies. The findings however revealed that unlike their instructors who thought 'Writing' as the second important skill, the participating students experienced another skill, i.e., 'Speaking' as the second important skill which should be developed. Thus findings are consistent with Eslami-Rasekh' (2010), Ferris' (1998), and Robinson's (1991) results that have shown discrepancies among instructors' perceptions and students' perceptions and indicated that instructors might not be the best judges for students' needs.

Moreover, students reported they had lower rate of 'vocabulary knowledge' as well as low abilities in 'listening', also they reported that speaking should be acquired and developed during their English language learning. Although commonalities were observed regarding the 'role of vocabulary' and 'speed of reading' between the two groups, instructors valued 'writing' more than 'speaking' however they did not ignore the integration of speaking and listening practices besides the two other skills (reading and writing). These findings are also similar to Eslami-Rasekh (2010) in terms of limited vocabulary, slow reading speed, need for increasing students' ability in 'speaking' and 'listening comprehension'.

Participants declared 'vocabulary' and 'reading speed' as the two important areas causing problems for students' studies, and 'writing' as the least important area. Also, students asserted 'reading comprehension of their course book' and 'field-related articles' were very helpful for their success. Moreover, majority of instructors and students believed that the course materials must be related to chemistry in terms of the *content* and the *topic* of students' specific discipline. Correspondingly, both groups recommended that the EAP/ESP courses be obligatory not optional and EAP should be started from the second semester of the first year. Based on majority of instructors and the steady opinion of students it should be started from the first year (the second semester), and the second year (the first semester) with constant English language learning at university levels. Furthermore, as needs analysis is by definition context-specific (Ferris, 1998: 314), in this study students believed in improving general and ESP English courses which it can be developed by skillful ESP instructors and English teachers who are familiar with both the subject and English rather than the subject or English language lonely.

As Hutchinson and Waters (1987) discuss, the statistics acquired from needs assessment studies should suggest the basis for curriculum developers, syllabus designers, materials writers, methodologists, and assessors. Regarding the importance of EAP courses, the findings of this study presents implications for renewing the EAP course for Iranian chemistry students and improving their efficiency in terms of reading, speaking and listening comprehension instruction that is needed for understanding their text book, Daily conversation, oral presentation and their research reports. The present findings have, also, practical implications for conducting complementary courses in English for chemistry students who feel that their English preparation was not sufficient by considering to set English proficiency levels for them while entering to EAP courses.

All in all, the present findings shed light on the effectiveness and value of exploring EAP language learners' needs and draw attention to the perceptions made by the learners and their instructors who are aware of the immediate needs and required skills in EAP courses. Bearing in mind the fact that English as an international language has great influence on transferring knowledge in any scientific field, also the fact that the chemist are the scholars who are supposed to introduce innovative ideas such as Nanotechnology or innovative substances such leather industries and color into the world through their written or oral records, double attention should be paid to the status of EAP learning context in our country. The present study has shed light on all these important issues.

APPENDIX. STUDENT/MEDICAL FACULTY QUESTIONNAIRE SURVEY OF THE ENGLISH LANGUAGE NEEDS OF MEDICAL STUDENTS

Directions: Please check the appropriate response.

1. How important do you think English language is to your/your students' current medical studies?

very important ☐ somewhat important ☐ unimportant ☐ 118 H.-U. Chia et al.

2. How important do you think English language is to your/your students' future careers?

very important ☐ important ☐ somewhat important ☐ unimportant ☐

3. *Faculty Only*: What percentage of the textbooks for your course are in English?

90–100% ☐ 70–89% ☐ 50–69% ☐ less than 50% ☐

4. *Faculty Only*: Do you ask your students to write reports and research papers in English?

always ☐ often ☐ occasionally ☐ never ☐

5. *Faculty Only*: Do you ask your students to write test answers in English?

always ☐ often ☐ occasionally ☐ never ☐

6. *Faculty Only*: How do you write reports and research papers? (select one.)

in English ☐ in Chinese, but medical terms in English ☐ in Chinese ☐ other (specify)

7. What percentage of the reading assignments in your medical classes/for your students are in English?

90–100% ☐ 70–89% ☐ 50–69% ☐ less than 50% ☐

8. *Students Only*: Which of the following English language skills do you feel are more important than the others for freshmen to improve? (Rank them this way: 1 = most important, 4 = least

important. Rank all.) listening ☐ speaking ☐ reading ☐ writing ☐

9. *Students only*: What is the most important reason to include listening comprehension activities in the freshman English language course? (Select one.)

to understand daily conversation ☐ to follow short lectures ☐ to understand radio and TV programs ☐ other (specify)

10. *Students Only*: What is the most important reason to include reading activities in the freshman English language course? (Select one.)

to read English newspapers and magazines ☐ to read textbooks ☐ to read professional journals ☐ other (specify)

11. *Students Only*: What is the most important reason to include speaking activities in the freshman English language course? (Select one.)

to carry on daily conversation ☐ to present classroom oral reports ☐ to deliver a speech ☐ other (specify)

12. *Students Only*: What is the most important reason to include writing activities in the freshman English language course? (Select one.)

to write correct sentences ☐ to write different discourse types ☐ to write for practical purposes ☐ to write research reports ☐ other (specify)

13. *Students Only*: What English problems are you currently facing in your academic studies? (You may check whatever is appropriate.)

limited vocabulary ☐ poor grammar ☐ poor listening comprehension ☐ poor speaking skill ☐ slow reading speed ☐ poor writing skill ☐ poor reading comprehension ☐ other (specify)

14. Which of the following English languages skills do you think are more important than the others for your/your students' medical studies? (Rank them this way: 1 = most important,

4 = least important. Rank all.) listening ☐ speaking ☐ reading ☐ writing ☐

15. What English problems are you/do you perceive that your students are currently facing in your/their academic studies?

limited vocabulary ☐ poor grammar ☐ poor listening comprehension ☐ poor speaking skill ☐ slow reading speed ☐ poor reading comprehension ☐ poor writing ☐ no idea ☐ other (specify)

16. Which of the following English skills are important for your/your students' success in medical studies? (You may check whatever is appropriate.)

reading to understand English textbooks and medical journal articles ☐ presenting oral reports ☐ understanding class lectures ☐ carrying on conversations ☐ writing test answers ☐ writing research papers ☐ other (specify)

17. Should the materials in the freshman English course be relevant to the medical field?

yes ☐ no ☐ (If no, skip to Question 18.)

18. What percentage of English materials in a freshman course should be relevant to the medical field?

90–100% ☐ 70–89% ☐ 50–69% ☐ 30–49% ☐ less than 40% ☐

19. Should the current optional English language course be a requirement?

yes ☐ no ☐

20. Which of the following English curricula do you perceive is the best one for you/your students?

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general English in the first year, no need for specific English for students ☐

general English in the first year, specific elective English in the second, third and fourth years ☐

specific English from the first through the fourth years, no general English ☐

general English in the first semester of the first year, specific English in the second semester ☐

general English in the first semester of the first year, specific English from the second semester of the first year to the second, third, and fourth years ☐

other (specify)

Thank you for completing this questionnaire

Note : in this study the way of ranking the Qs 8&14 have changed because of preventing students to make mistakes so the least important=1 , the most important=4

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