

2. A study of the specific English language needs of engineering students of Adama Science and Technology University (Ethiopia): A case study

*Serawit Atnafu Tesema and **Haileleul Zeleke Woldemariam

Abstract

This study focused on analysing the ESP needs of engineering students at Adama Science and Technology University (ASTU) and the extent to which these needs of students have a proper place in the syllabus redesign and material preparation. Special focus was on the course technical report writing which was designed to enhance the successful training and preparation of engineering students for effective and efficient workplace performances. Second year students, engineers and course instructors at the University and employers (institutions) participated in this study. The first group of respondents was students. A total population of 630 students took the course. From this total population, 189 students (30%) were randomly selected and included in the study. This means that 68 students from the Civil Engineering, 67 students from Mechanical and 54 students from Geomatics Engineering were the specific respondents of the study. The second groups of respondents were employers and English instructors of engineering students. Five instructors, who were offering the technical report writing course, were first taken as data sources. Secondly, employers, namely Adama Municipality and the GIZ construction, Adama project office were involved to find out the type and the purpose of English language these employers expected from their engineering employees. Qualitative and quantitative data were drawn from these participants through questionnaires, interviews and focus-group discussions. To gather additional data and crosscheck responses, text analysis was made on the course technical report writing. Findings from the responses of the participants revealed that English was highly demanded in both occupational and academic domains of the engineering profession. However, there was a huge gap between their needs and what the course offered, between their future targets and their present competences, based on the responses found from the participants through questionnaires, FGD and interviews.

Key Words: English for Specific Purpose (ESP), technical report writing, engineering, English for Academic Purposes, needs analysis and English as a Foreign Language (EFL)

1. Background

English has become the most dominantly used language internationally in various spheres of human experience. It is used as a global medium of communication and as a language of curriculum and instruction across most academic circles. It is the most widely used language in international businesses and advertising, diplomatic relations and conferences, and mass communication. English is also a dominant language in the field of literature, entertainment, science and technology, as well as scientific research and publications. In the present age of science and technology, in particular, the role of English as a language for the impartation of global knowledge is very prominent. As Essen (2000) claims, the prevalence of English as a global language is of greater interest in specific contexts such as English as a foreign or second language or English for Specific Purposes (ESP). This global reality necessitates our conversance and competence in the language in order to capitalise on our scientific know-how and advancement. Access to much scientific and technical knowledge and skills is believed to be difficult for those with little knowledge of English.

*Regional Communications, Knowledge Sharing and Capacity Development Innovator, ISSD Ethiopia (serawit_tesema@yahoo.com, Tel: +251-911-977910)

**Deputy Director/Associate Professor, Department of Communication, FHS, Namibia University of Science and Technology, Windhoek, Namibia

The increasing demands for English for diversified contexts have caused changes in English Language Teaching (ELT), which requires a new look at one aspect of English language teaching, which is English for Specific Purposes (ESP). This is because ESP is about training students in specialised language areas such as engineering, law, economics, physics, medicine or other professions. As Robinson (1991, p.1) notes, the basis of ESP is the teaching of language using content or subject matter in a specific field of studies, and ESP has grown to be a major discipline in the world.

ESP needs analysis, then, has a vital role in the process of designing and carrying out any language course. According to Iwai, Kondo, Limm, Ray, Shimizu, and Brown (1999), the term 'needs analysis' generally refers to the activities that are involved in collecting information that will serve as the basis for developing a curriculum that will meet the needs of a particular group of students. Chen (2006) argues that needs analysis further enables the teacher to discover the abilities the learners bring to the class and what they cannot do in English. EAP as well as the ESP courses offered at the Adama Science and Technology University in Ethiopia to students of technology do not seem to be students' needs driven. Rather, teachers seem to teach their students based on their own experience and what they believe is appropriate for their students. The present study attempted to investigate the English language needs of engineering students and to find out if the current course provided as ESP meets students' needs.

The University offers courses such as Communicative English Skills, Basic Writing Skills and Technical Report Writing for first and second year undergraduate social and natural sciences students, including technology field students. Of these courses, Technical Report Writing is the only course offered as an ESP course. The rest are courses for English for Academic Purposes (EAP). Technical Report Writing is the focus of the current study as it is the only ESP course offered, and for the main objective of identifying whether there is a match or mismatch between the contents of the course offered and the students' actual needs.

2. Statement of the problem

The call for ESP seems to have increased everywhere, especially in countries where English is taught as a foreign language (EFL). According to Jiajing (2007), with the globalisation of trade and the economy and the continuing increase of international communication in various fields, the demand for English for specific purposes is expanding, especially in countries where English is taught as a foreign language. Though the emanation of ESP responds to new needs of learners from specific professions, the case of Ethiopia does not seem to increase yet. The researchers' experience also shows that the reality of English language teaching in the country does not seem encouraging. This has resulted in a much reduced number of Ethiopian students who finish their secondary and even tertiary level studies with a good command of English. Indeed, despite the fact that the vast majority of students have been learning English for at least ten years, their level is, in general, not much higher than the elementary level of proficiency.

Adama Science and Technology University (ASTU) offers Communicative English Skills, Basic Writing Skills and Technical Report Writing courses for first and second year undergraduate social and natural sciences students, including technology field students. Of these courses, Technical Report Writing was the only course offered as an ESP course during the period of conducting this study. The rest were courses for English for Academic Purposes (EAP). Technical Report Writing was the focus of the current study as it was the only ESP course offered, and for the main objective of identifying whether there was a match or mismatch between the contents of the course offered and the students' actual needs.

The English language programmes offered by universities in Ethiopia, according to Baharu (n.d.), are geared towards English for academic purposes, irrespective of students' future professional fields of study. Currently, students at higher learning institutions are pushed towards English for general purposes. This general approach mainly marks the overall English teaching setting without any specific focus. Though this general English approach handles students' English language needs for academic purposes from the point of view of the language needs of academic university programmes, the researcher believes that the course fails to address the possible demands of the professional target situations like those of engineering, medicine or banking.

It therefore seemed worthwhile to investigate the ESP needs of engineering students at ASTU and examine to what extent the ESP course (*Technical Report Writing*) provided to students by the university matched the students' needs with an objective of helping them effectively communicate in professional and public services due to the reasons mentioned above. The study was conducted at ASTU, for it was a newly established institution as a Science and Technology University, and lacked research that targeted the area of English language specific to ESP.

3. Objectives of the study

In general terms, the purpose of the study was to identify the English language needs of engineering students at ASTU and the extent to which these needs had a proper place in the syllabus redesign and material preparation, with a view to both enhancing successful training in students' current academic performance and their preparation for effective and efficient workplace performance. Specifically, the study aimed to:

1. identify engineering students' (2nd year) English language needs and main difficulties in learning English
2. discover the gap between the students' language needs and their current competence
3. identify students' perceptions of their language needs and the course in relation to their needs
4. discover how students rate their own competence in particular skills related to the academic, professional and social domains

4. Methods and procedures

Selecting ASTU as its case, this study focused on the course *Technical Report Writing* which was designed to enhance the successful training and preparation of engineering students for effective and efficient workplace performance. Second-year student-engineers and course instructors at the University and employers (institutions) participated in this study. The first group of respondents was students. A total population of 630 students took the course. From this total population, 189 students (30%) were randomly selected and included in the study. This means that 68 students from the Civil Engineering, 67 students from Mechanical Engineering and 54 students from Geomatics Engineering were respondents of the study. The second group of respondents were employers and English instructors of engineering students. Five instructors who were offering the technical report writing course were taken as data sources first. Secondly, employers, namely, Adama Municipality and the GIZ construction Adama project office were involved to determine the type and the purpose of English language these employers expected from their engineering employees. Qualitative and quantitative data were drawn from these participants through questionnaires, interviews and focus-group discussions. To gather additional data and crosscheck responses, text analysis was done on the course *Technical Report Writing*. For the purpose of this study, data were obtained mainly through questionnaires, interviews with instructors and employers, as well as focus-group discussions with selected student-engineers besides course material

evaluation.

5. DATA ANALYSIS, FINDINGS AND DISCUSSIONS

5.1. Questionnaire response

Data were gathered through questionnaires, interviews, focus-group discussions and content analysis. In this section of the study, the analysis of data gathered through the major instruments is presented.

5.1.1 Reasons for learning English

Student-engineers were asked how they generally rated the importance of learning English in their academic and professional purposes. The focus and aim was to find students' reason for learning English. Their responses are summarised in the table below.

Table 1: Importance of learning English

Purpose	5-very important			4-important			3-moderately important			2-not important			1-undecided			M
	F	%	fx	F	%	Fx	F	%	fx	F	%	f x	F	%	fx	
Academic	115	69.7	575	35	21	140	15	9.0	45	0		0	0	0	0	4.6
Professional	130	78.8	650	35	21.2	140	0	0	0	0		0	0	0	0	4.8

Key - F = responded fx = response multiplied by scale % = percentage M = mean score R = rank

As can be seen from the table above, students generally rated the importance of learning English for professional purposes and for academic purposes. Close to 79 % of the students rated learning English as very important for future specific occupation. Similarly, about 70 % of them responded that learning English was very important for their academic studies. In the same way, more than 21 % of the students responded that learning English is important both for academic purposes and for future specific occupational tasks.

5.1.2 English skills for academic studies

Student-engineers were also asked to rate the importance of English macro-skills (speaking, writing, listening and reading) as well as other sub-skills (grammar, vocabulary and pronunciation). The students were required to indicate the degree to which these skills were important for their academic studies. For this purpose, a 5-point scale of responses that represent 'very important', 'important', 'moderately important', 'not important' and 'I don't know' was provided corresponding to each skill, so as to let them indicate their perceived importance level. The responses were multiplied by their frequencies to calculate mean scores, which helped to indicate the rank order of importance of skills. The students' responses were also compared with the course instructors' responses to the same questions. All of the student respondents said writing was very important as compared to other macro-skills for their academic studies. This was followed by vocabulary which was ranked as the second skill selected by the students. A mean score of 4.97 was found for vocabulary to be the students' second important skill for their academic studies. The third important skill was indicated as reading. On average, however, students appear to have rated all the skills as 'important' because the mean score for all the skills was registered as greater than 4.5. Therefore, it may be possible to deduce that student-engineers believed that all the

macro-skills were important for their academic studies.

Table 2: Students’ perceptions of importance of English macro-skills for academic studies

Skills	5- Very Important			4-Important			3-Moderate			2-Not important			1-I don't know			M	R
	F	%	fx	F	%	fx	F	%	fx	F	%	fx	F	%	fx		
Speaking	150	91	750	10	6.1	40	5	3	15	0	0	0	0	0	0	4.8	4
Writing	165	100	825	0	0	0	0	0	0	0	0	0	0	0	0	5	1
Reading	155	94	775	10	6.1	40	0	0	0	0	0	0	0	0	0	4.9	3
Listening	145	88	725	10	6.1	40	5	3	15	5	3	10	0	0	0	4.7	5
Grammar	135	82	675	15	9.1	60	15	9.1	45	0	0	0	0	0	0	4.7	6
Vocabulary	160	97	800	5	3	20	0	0	0	0	0	0	0	0	0	4.97	2
Pronunciation	120	73	600	20	12	80	20	12	60	5	3	10	0	0	0	4.5	7

Key - F = responded; fx = response multiplied by scale; % = percentage; M = mean score; R = rank

Technical report writing instructors were also asked to rate the importance of the same macro-skills for the student-engineers’ academic studies. The intention was to compare their responses with those of the students and further make the importance of the skills reliable. Table 8 summarises their responses.

Table 3: Instructors’ perceptions of importance of macro-skills for students’ academic studies

Skills	5-V. Important			4- Important			3- Moderate			2-Not important			1-I don't know			M	Rank
	F	%	fx	F	%	fx	F	%	fx	F	%	fx	F	%	Fx		
Speaking	3	60	15	1	2	4	1	2	3	0	0	0	1	2	1	4.6	2
Writing	5	100	25	0	0	0	0	0	0	0	0	0	0	0	0	5	1
Reading	3	60	15	1	2	4	1	2	3	0	0	0	0	0	0	4.4	3
Listening	3	60	15	1	2	4	1	2	3	0	0	0	0	0	0	4.4	3
Grammar	1	20	5	3	6	12	1	2	3	0	0	0	0	0	0	4	6
Vocabulary	1	20	5	4	8	16	0	0	0	0	0	0	0	0	0	4.2	5
Pronunciation	0	0	0	3	6	12	2	4	6	0	0	0	0	0	0	3.5	7

Key – F = responded; fx = response multiplied by scale; % = percentage; M = mean score; R = rank

As can be seen in the table, instructors, like the student-engineers, also agreed that writing is a very important skill for students’ academic studies. The instructors rated speaking as the second important macro-skill with a mean score of 4.6, unlike the students who rated it as the 4th most important skill. As to the instructors’ responses, reading and listening were rated as equally important for the student-engineers’ academic studies, with a mean score of 4.4. Vocabulary, grammar and pronunciation were rated 5th to 7th respectively, but vocabulary and grammar were rated in the domain of ‘important’ with

mean scores of 4.2 and 4.0 respectively. Pronunciation, however, fell in the domain of ‘moderately important’ with a mean score of 3.5. Generally, both the students and instructors agree on the importance of the macro-skills for academic studies, though they rank the importance of different skills differently.

As can be seen from the Table 4 below, student-engineers have ‘good’ and ‘average’ performance in speaking, reading, writing and pronunciation with mean scores of 3.8, 3.4 and 3 respectively. With the rest of the skills, the response of the instructors suggested that students may need better assistance. Particularly, in grammar and vocabulary, the students had a mean score of 2.6 each, which was fair. Therefore, in these two skills, the responses from the instructors indicated students may need a means to improve.

Table 4: Instructors’ ratings of students’ performance in English skills

Skills	5-V. Good			4- Good			3-Average			2-Fair			1-Poor			M	Rank
	F	%	fx	F	%	fx	F	%	fx	F	%	fx	F	%	F x		
Speaking	1	20	5	1	20	4	3	60	9	0	0	0	1	20	1	3.8	1
Writing	0	0	0	1	20	4	3	60	9	1	20	2	0	0	0	3	5
Reading	0	0	0	3	60	12	1	20	3	1	20	2	0	0	0	3.4	2
Listening	0	0	0	0	0	0	3	60	9	1	20	2	1	20	5	3.2	4
Grammar	0	0	0	1	20	4	1	20	3	3	60	6	0	0	0	2.6	6
Vocabulary	0	0	0	1	20	4	1	20	3	3	60	6	0	0	0	2.6	6
Pronunciation	0	0	0	1	20	4	3	60	12	0	0	0	1	20	1	3.4	2

Key – F = responded; fx = response multiplied by scale; % = percentage; M = mean score; R = rank

In listening, the mean score was 3.2. From these mean scores it is possible to deduce that the student-engineers may need more assistance, because their performance at this level indicated that they will be facing difficulties in their academic work as well as in their future occupation.

Table 5: Students’ self-ratings on their performance in English skills

	5-V. Good			4- Good			3-Average			2-Fair/			1-Poor			M	R
	F	%	fx	F	%	Fx	F	%	fx	F	%	fx	F	%	Fx		
Speaking	56	33.9	280	28	17	112	61	37	183	15	9.1	30	5	3.03	5	3.7	4
Writing	58	35.2	290	59	35.8	236	35	21.2	105	12	7.3	24	1	0.61	1	4	3
Reading	93	56.4	465	48	29.1	192	22	13.3	66	1	0.6	2	1	0.61	1	4.4	1
Listening	66	40	330	63	38.2	252	30	18.2	90	1	0.6	2	5	3.03	5	4.1	2
Grammar	40	24.2	200	48	29.1	192	48	29.1	144	17	10	34	12	7.27	12	3.5	5
Voc.	26	15.8	130	36	21.8	144	61	37	183	30	18	60	0	0	0	3.1	7
Pronunciation.	39	23.6	195	48	29.1	192	46	27.9	138	22	13	44	10	6.06	10	3.5	5

Key - F = responded; fx = response multiplied by scale; % = percentage; M = mean score; R = rank

However, students rated themselves - as seen in the Table above - at an ‘average’ and ‘good’ level of performance in the macro-skills, except for reading, where the responses by the instructors and the

students seemed to be similar. The student-engineers too replied that they had ‘good’, even better performance in reading with a mean score of 4.4. The next skill in which the students claimed to have a better performance was the listening skill with a mean score of 4.1. Their response, however, did not match instructors’ responses as the latter suggested that the students needed assistance with this skill. The next skill the students said they had good performance in was the writing skill with a mean score of 4. In this skill, however, the instructors said student-engineers had an average performance. The students’ response also showed that they still needed attention, as the instructors’ responses indicated. In speaking, grammar, pronunciation and vocabulary, students also said they had an average performance. This clearly showed that work should be done to help them improve to the level expected. Students also seemed to worry about their abilities in speaking, vocabulary and pronunciation. This might be because they wanted to be fluent in spoken English. The instructors’ responses, as compared to the students’ level, seemed to be more convincing. The reason was that the instructors believed that they knew the level of their students. After all, students themselves admitted that they were not very good at all the skills. Attention, hence, ought to be given to treating these weaknesses of the students.

6 English skills for future occupation

In the same manner done for the students’ academic studies, student-engineers were asked to rate the importance of English skills (speaking, writing, reading, listening, grammar, vocabulary and pronunciation). The students were required to indicate the degree to which these skills are important for their future profession. For this purpose a 5-point scale of responses that represent ‘very important’, ‘important’, ‘moderately important’, ‘not important’ and ‘I don’t know’ was provided corresponding to each skill, so as to let them indicate their perceived importance level. The responses were multiplied by their frequencies to calculate mean scores which help to indicate the rank order of importance of skills.

Table 6: Students’ responses on the importance of English skills in future occupation

	5-V. Important			4- Important			3-Moderate			2-Not important			1-I Don't know			M	Rank
	F	%	fx	F	%	fx	F	%	fx	F	%	fx	F	%	fx		
Speaking	88	53.3	440	46	27.9	184	20	12.1	60	10	6.1	20	11	0.61	11	4.3	1
Writing	37	22.4	185	56	33.9	224	59	35.8	177	12	7.3	24	11	0.61	11	3.7	3
Reading	47	28.5	235	49	29.7	196	76	46.1	228	11	0.6	2	11	0.61	11	4	2
Listening	30	18.0	150	59	35.8	236	62	37.6	186	13	7.9	26	11	0.61	11	3.6	4
Grammar	34	20.6	170	28	17.2	112	72	43.6	216	18	11.1	36	12	7.2	12	3.3	5
Vocab.	28	17.0	140	28	17.2	112	71	43.1	213	25	15.5	50	13	7.8	13	3.2	7
Pronunciation	35	21.2	175	30	18.2	120	67	40.6	201	20	12.0	40	13	7.8	13	3.3	5

As can be seen from the table above, speaking, reading and writing skills were ranked as first to third important skills with the mean scores of 4.3, 4 and 3.7 respectively. The rest of the skills, namely listening, grammar, pronunciation and vocabulary were ranked fourth to seventh, all constituting importance mean scores within the range of ‘moderate’ to ‘important’. As can be read from the table above, about 53 % of the respondents ranked speaking as ‘very important’ for their future occupation.

Here the students' responses showed that the four macro-skills of English ranked 1st to 4th. However, the students tended to choose writing as their most necessary skill for their academic purposes and speaking for their professional purposes. The reason might be due to their perception that writing was more important for writing notes from lectures, academic materials, assignments, exams and reports in classes or from field trips. Similarly, the students might have perceived speaking as more important for communicating with employers and colleagues for their professional purposes than other skills. On the other hand, students - from their responses - seem to be concerned about all language skills for their future professional activities.

7 Academic activities to be accomplished in English

It was apparent that all the activities provided to both groups of respondents were of important value. It can also be concluded that the majority of the activities under each macro-skill were scored mean values of above 4.5, though the degree of importance varied. The highest mean scores for the activities varied between 5 (listening to course lectures, seminars/meetings as well as listening to presentations and writing reports, short stories, course assignments and letters all in the case of the instructors) and 4.95 (listening to seminars/meetings, speaking at meetings and writing course assignments all in the case of student-engineers). This means that these scores were close (for some) to the highest extreme 'very important'. Something noticed from this table was that instructors and student-engineers seemed to give emphasis to the importance of English activities in students' academic studies. Regarding reading, such activities as reading academic texts, technological magazines, references, lecture handouts and newspapers were provided for the responding students to rate their importance.

Table 7 : Mean scores and ranks of the importance of English activities in academic studies

Academic Study Activities in English	Mean Scores		Ranks	
	Students	Instructors	Students	Instructors
1. Reading				
a. Newspapers	3.37	3.6	5	5
b. Technological magazines	4	4.8	3	1
c. Academic texts	4.236	4.8	1	1
d. Lecture handouts	4.079	4.6	2	3
e. Reference tools	3.624	4.6	4	4
2. Listening/watching				
a. TV programmes	4.109	4	3	2
b. Videos/ films	4.012	4	5	2
c. Course lectures	4.412	5	2	1
d. Seminars/meetings	4.945	5	1	1
e. Presentations	4.091	5	4	1
3. Speaking				
a. In class discussions	3.594	4.6	5	1
b. With lecturers	4.012	4.4	4	2
c. At conferences/seminars	4.412	4.4	3	2
d. At meetings	4.945	3.6	1	5
e. At presentations	4.655	3.8	2	4
4. Writing				
a. Reports	4.012	5	4	1
b. Short stories	4.412	5	3	1
c. Course assignments	4.945	5	1	1
d. Letters	4.758	5	2	1
e. Examination papers	4.012	4.8	4	2

By using the mean scores calculated, the activities were ranked for both the student-engineers and instructors. Both groups' responses seemed to agree to the ranking of the importance of the activities. All are above the mean score, falling in-between 4 to 5. Both groups agreed on the importance of reading academic texts, lecture handouts and technological magazines. Generally, the rankings given by the instructors seemed to be more acceptable, because they believed they knew their students' level and lack of their proficiency very well. Therefore, the ranking from 'very important' to 'least important' include reading: academic texts, lecture handouts, reference tools, technological magazines and newspapers.

8 The importance of activities for future occupation

The researchers identified twenty activities that can be performed in English in the Ethiopian engineering, industrial or construction sectors by engineers and provided them to student-engineers to decide the importance of the activities. Their responses are summarised in table form to depict the rank of the importance of the activities (see Table 13 below). According to Table 13, most of the students' mean scores as to the importance of English activities in their future occupation lie between 1 (very important) to 3 (moderately important). This implies that almost all of the activities are performed in English in the industrial, construction and engineering sectors, and that the need for English to carry out these activities is high. As can be seen in the table below, five activities under each were provided for the student-engineers to determine the level of importance they had in the engineering profession. Accordingly, for reading, student-engineers ranked reading magazines/periodicals 1st, reading reference tools 2nd, and reading e-mails 3rd. Similarly, they ranked reading newspapers and letters or reports 4th and 5th respectively. It seemed that the responses of the students were reasonable, because the mean scores of these ranks from 1st to 5th respectively were 1.8, 1.9, 2.3, 2.3 and 3.1. This implied that all the activities were felt important in the student-engineers' future jobs.

Regarding the activities listed under listening, the students were provided with five English activities to be accomplished in the student-engineers' future jobs. These included listening to music, videos/films, at meetings/to presentations, at conferences and to the radio/TV programmes.

Table 8: Perceived importance of activities accomplished in English in student-engineers' future profession

Engineering activities performed in English	Results		Engineering activities performed in English	Results	
	Mean	Rank		Mean	Rank
1. Reading			3. Speaking		
a. Newspapers/newsletters	2.394	4	a. On stage	2.406	3
b. Magazines/periodicals	1.812	1	b. At conferences	1.988	2
c. Reference tools	1.988	2	c. At seminars	1.588	1
d. Letters/ reports	3.152	5	d. At meetings	2.479	4
e. E-mail on the internet	2.358	3	e. In informal situations	2.618	5
2. Listening/watching			4. Writing		
a. The radio/TV programs	2.345	4	a. Letters, diaries, short stories	1.988	2
b. Videos/ to films	1.988	2	b. Reports, notices	1.588	1
c. Meetings/to presentations	1.588	1	c. CVs, application letters	2.479	4
d. Conferences	2.479	5	d. Instruction booklets	2.412	3
e. Music	2.273	3	e. e-mail on the internet	4.048	5

In these activities too, the students' responses' mean scores ranged between 'Important' and 'Very important', that is, between 1 and 2. The mean scores ranged from 1.5, 1.9, 2.2, 2.3 and 2.4 respectively from 'very important' to 'important ratings'. Specifically, the students put their ranks as listening: at meetings/to presentations 1st, to videos/ to films 2nd, to music 3rd, to the radio/ TV programmes 4th and at conferences 5th. Therefore, since the ranking and the mean scores showed all the activities to be at least important, these rankings of the students seemed to be logical.

In the same way as the other skills, five activities deemed by the researchers to be mostly spoken by engineers in their professions were given to the students to decide their importance. The activities provided were speaking on stage, at meetings, at seminars, and at conferences. The student-engineers indicated that all of these activities of speaking in English were important. The mean scores of the activities ranged between 1.5 and 2.4. This implied that the range of importance was above important, because '1' was 'very important' and '2' was 'important'. The mean scores of the student-engineers' responses and final importance order from high to least important activities were: speaking during seminars, conferences, on stage, at meetings and speaking during informal situations.

Five activities related to writing in engineering were identified and presented to these respondents to determine their importance in student-engineers' future occupation. The students' mean scores seemed to rate all except one (writing e-mails) activity as 'important' to 'very important'. On writing for the social media, the students' mean score showed 4.04, which was 'not important'. For this item, the researchers felt that student-engineers needed e-mails and internet for communication with different agencies and organisations. The response from the employers' interview also showed that various contacts and communications were made with engineers and employers via internet connections or e-mailing. Therefore, though not at the upper level ranks, the researchers believed that engineers needed writing on the internet for their future occupation. The other activities provided for the respondents were writing letters/diaries/short stories, instructions/booklets, curriculum vitae (CV)/application letters and reports/notices. Then the students ranked them as writing reports/notices 1st; letters, diaries, short stories 2nd; instruction booklets 3rd; and CVs, application letters 4th. Therefore, to resolve the needs of these activities under writing, it was possible to merge them as writing: writing reports/notices, letters, diaries, short stories, instruction booklets, CVs, application letters, social media ranked from first to fifth from very important to least important activities of writing.

9 Summary of student-engineers' overall needs of English skills and activities

The summary of the student-engineers' needs of English skills and activities in their academic, professional and social or personal situations is presented in the table below. The grand mean scores of students' responses indicated above 4.2 for skills and activities in their academic studies. On the other hand, the grand mean scores for their future profession were 2.3, while those for social/personal lives were 3.04.

Table 9: Grand mean scores of students' overall needs of English skills and activities

		Purposes			
		Sub grand mean scores for			
S/N	Items	Academic Studies	Future Profession	Social/ Personal Life	
1	Importance of	Reading	3.9	2.34	3.4
		Listening	4.3	2.2	3.0
		Speaking	4.32	2.22	3.3
		Writing	4.23	2.5	2.5
	Grand Mean	4.2	2.3	3.04	
2	Competence of	Reading	3.7	1.9	2.12
		Listening	3.04	2.6	2.42
		Speaking	3.0	3.0	2.0
		Writing	3.21	2.7	2.6
	Grand mean	3.24	2.6	2.3	

Regarding their perceived performances of the three domains, the students' responses' grand means indicated 3.24 for academic studies, 2.6 for their future profession and 2.3 for their social/personal lives. Hence, from their grand mean scores of the three purposes, it can be deduced that the student-engineers may need care and attention with regards to awareness of English skills for their professional and personal/social lives. Similarly, from the grand means of the three domains (academic studies, professional services and personal/social lives), it can be observed that students may need further training to improve their performance, especially for their future profession and personal/social lives.

10 Students' comments on the purpose of English language learning

The students of engineering were asked to write comments with respect to their purposes of English language learning. Most of the students said that their purpose is to be able to understand the materials and references written in English while attending classes and while doing professional duties, because English is the medium of instruction at universities everywhere in Ethiopia. Most of them emphasised its importance for communication in specific occupational settings. Some of them said that their main purpose was to conduct research in the field of technology and compiling reports.

Other students commented that English is very important, as the world is becoming a small village through globalisation. Unless there is good proficiency in English, communicating and benefitting from the world is difficult, as English is an international language. Others said almost all technological documents, research reports, journals and books are written in English, and their purpose was to be beneficiaries of those materials, while at the same time getting involved in the writing business. In the same way, others commented that their purpose of learning English was to be academically and professionally successful, while some stated that they learned it to communicate with foreigners.

11 The student-engineers' English language deficiencies

Hutchinson and Waters (1987) presented the language lacks as the gap between the target and present situations (what the students are expected to do in their academic studies and/or future occupation, and

their present level of competence). With the help of the questionnaires, the researchers tried to gather information regarding the participants' (both groups) perception of the importance of English skills in their academic and professional contexts and regarding students' performance in various language skills and activities. Therefore, the gap was believed to give some insights about the student-engineers' language deficiencies.

Student-engineers' needs for English in performing some academic and occupational activities were identified as presented in the tables above. Mean scores of the importance of English were calculated and presented in the above tables. The mean scores vary between 5 and 4 implying 'very important' and 'important' respectively. With regards to the learners' English competence, this study showed that their English abilities were between 'average' and 'fair', and that the students' abilities were rated between 2 and 4, which means 'good' and 'fair' respectively. The student-engineers' self-evaluation as 'good' and 'average' in some activities was believed to be self-overrating, as compared to the ability judgement of the students. The mean scores showed the students' English lacks in different skills and activities. The researchers believed that the reason was due to the fact that the English courses, particularly the course *Technical Report Writing*, was designed based on students' needs analysis. Therefore, it may be concluded that instructors in particular and ASTU in general need to fill the gaps in order to help the students to successfully perform in the situations.

5.2. Results of the qualitative data

5.2.1 Text evaluation

An attempt was made to evaluate the *Technical Report Writing* course materials using the content evaluation checklist developed by Cunnings (1995) containing 10 questions. These checklists were employed to evaluate whether or not the materials adequately satisfied the English language needs of engineering students. First, the researchers found that Adama Science and Technology University had no formal module for the *Technical Report Writing* course. All the instructors offering the course used their own materials for teaching the course. When it was decided to see whether or not the materials (used by different instructors) were prepared based on a careful needs analysis of the learners, it was found that no needs analysis of any sort was made to develop the material. This was confirmed through interviews with instructors. Although the Department of English demanded a focused course responding to the students' needs, the material that was being used for the course was not designed on the analysis of learners' needs. So, the English Department of the university was letting course instructors teach course content they thought was important without carefully studying the needs of the students.

Regarding the second question of the checklist regarding the content suitability to learners' needs linguistically, the contents involved were almost all about writing skills. It was about writing technical reports, memos and proposals. It included the basics, steps and formats of writing a technical report, memos, proposals and a curriculum vitae. From this, it could be said that the topics of the course were related to the objectives of the course, though the examples and a few of the topics did not seem to be related to their subject area. Similarly, it did not seem to have sufficient 'specialist' vocabulary related to the engineering field. This might be due to the reason that most of the topics covered did not appear to be in line with students' subjects or with the engineering profession. The students in the focus group discussion also reflected this point. Moreover, as the quantitative results showed that the engineering students prioritised mainly the kind of English which could help them fulfil their future profession, they prioritised mainly the reading, speaking and listening skills as equally as the writing skill. They would not require speaking very often in the Ethiopian context. The student-engineers also wanted to equally know

'specialist' vocabulary, grammar, and pronunciation. This may be because of the reality that their actual and major work involved more writing than other skills, especially in their future occupations. Similarly, vocabulary and grammar were embedded in the writing activity itself, as any good course of writing integrates the learning/acquisition of these skills. Therefore, writing simply does not exist without vocabulary and grammar. Specialist vocabulary, however, is the need for word power in the students' specific profession. Thus, it could be argued that the contents of the course seem unlikely to satisfy the engineering students' all-round language needs.

With regards to analysing whether or not there was 'core' specialist language related to the subject area, it could be said that there was almost no 'core' specialist language related to engineering. This finding was in agreement to what English instructors in their interviews and questionnaires as well as what the students said in their discussion.

In the checklist, the next question was about whether the learners were equipped with the skills and strategies that would allow them to work professionally in English in a practical situation. The quantitative analysis above revealed that the students prioritised English for their professional purpose as compared to their academic and personal/social lives. They also prioritised speaking and listening skills. Moreover, the sub-skills and activities that the engineering students need were identified. However, it seemed that the course material was not providing the student-engineers with the skills to use in situations in which they worked and presented to the class, because these skills and activities were not incorporated in the material in such a way that enabled students to practise intensively. During interviews with employers, it was also found that employed engineers lacked confidence of not only speaking and critical listening, but also writing a single page of a recommendation letter or a memo. However, in the course material (*Technical Report Writing*) the majority of activities were done in writing, but it seemed that it lacked extended activities enabling students' practice to the extent they are expected to. Hence, the course material was unlikely to equip learners with the skills, sub-skills, strategies, and situations which reflected students' future profession as it emphasised mainly the skills, sub-skills, and strategies which could help learners satisfy their academic needs. Besides, the course material was prepared based on a topic-based syllabus. However, engineering students needed the material to be based on a content or task-based syllabus (Dudley-Evans & St. John, 1998).

The next question in the checklist was whether there was a balance between subject-specific language items (grammar, vocabulary, and discourse structure) and operational skills and strategies. It could be said that no balance of this kind appears to exist, as no needs analysis was conducted when the course was designed and the content could not be based on subject specific language items from engineering. General and non-field-specific writing skills were mainly considered. The contents appeared supportive for students from a variety of disciplines demanding general purpose English to use in their corresponding academic studies rather than only for engineering. Hence, only general strategies and skills were learned from this course. These results appeared to agree with what the students in the focus group discussions and the English instructors in the interview said.

The sense of collaboration in ESP as indicated by Robinson (1991), Dudley-Evans and St. John (1998) and Strevens (1980) is that learners and teachers have to work collaboratively: the students are believed to have knowledge in their subject areas while the teacher is an expert in the language. Thus, in an ESP context, the students are believed to be co-workers, input providers (content area) and in general, collaborative trainees. With respect to whether or not the material considered the relationship between teachers and students, and whether a collaborative approach was encouraged, however, the material was found not to have a clear account of the relationship between teachers and students and no

collaborative approach treatment was encouraged in the text. The reason may be large class sizes, inconvenient sitting arrangements and the low attention given to the course (limited contact and credit hours). Since the course material did not seem to involve students' subject area contents sufficiently, the instructors seemed to act as the only input and feedback providers, organisers and monitors. In short, the essence of collaboration in ESP did not seem to exist.

As to the flexibility of the material to meet the constraints often found in ESP work, for example by having a modular structure of non-sequential units and sections, it could be said that the material was fairly flexible to meet the constraints, like when students missed classes; the sections of the units had a modular structure of non-sequential self-contained units. Moreover, as the instructors downloaded the material from the Internet, students could easily access the missed lectures from the internet and adjust themselves. They could also get the handouts.

Another question in the checklist was whether the material could be used for individual study and whether teachers were given guidance on how to use the material in this way. The material has a course outline distributed for the students first. The course outline has a sufficiently provided introduction and guidance on how to use the material. However, there is no instructors' manual that gives guidance on how to use the material. It also seems that there is no guidance on how the students can use the material, but the instructions and tasks in the body of the material can clearly help the students use the material for self-study.

Regarding the question as to what extent the learning activities mirrored realistic situations through task and skills based activities, at least two points can be made. First, the academic situation by itself was a real life situation. Thus, the different tasks and skills like note taking seemed to reflect what we did in the academic context. Private life and professional areas were again situations which reflected 'real-life'. From this angle, it may be argued that the skills and activities seemed not to reflect the real-life situation. The course material provided sample reports and examples. According to the sample material referred to, the students did not seem to be given activities which required them to write field reports as well as job or personal technical letters somewhere in the material.

Finally, evaluating if the learning activities had outcomes or products that would help learners to evaluate their performance was the last question in the checklist. Activities like writing a technical report of a project field visit, a proposal and job letters would help the students to evaluate their performance. However, teachers may still design their own project activities. Activities prepared for the students were not found in the course material.

Generally, the course material did not seem to respond to the real needs of the students, since it did not satisfy many of the elements ESP material should treat sufficiently. As Dudley-Evans and St. John (1998) explain, ESP teaching does not necessarily have to be related to content, but it should always reflect the underlying concepts and activities of broad disciplines. Widdowson (1983), on the other hand, makes use of the essential problem-solving methodology. However, the current course material under discussion did not employ a methodology linked to a particular profession or discipline which differs from that used in general purpose English teaching. This would suggest that the text material did not consider the specific needs of the learners under question. This meant that the course material did not seem to agree with Robinson (1991), who said ESP is based on a needs analysis at the end of the course requirements and initial needs including learning needs. The course also failed to satisfy some of the absolute and variable characteristics used by Dudley-Evans and St. John (1998). It was not designed to meet the specific needs of the students of fine art; it did not make use of the underlying methodology and

activities of the discipline it served; and it did not use in specific situations a different methodology (the nature of interaction between the ESP teacher and the learner) from that of general English and English for Academic Purposes.

1. Students' focus-group discussion

The students' focus-group discussion was conducted among twenty randomly selected students and on twelve points believed to be relevant in order to analyse the situation of the English language teaching-learning process to support the data gathered through other instruments. The first discussion point was about their previous English language learning experiences or exposure. As most of the students said, their past English language learning was not good. They said that they had poor English language teaching conditions primarily related to the inferior quality of teachers and inappropriate language materials at schools. According to these students, their learning lacked practice and the actual use of the language. The support given by teachers was also minimal. The students also admitted that they were not making their own individual efforts to improve their language competence. This seemed to have had a negative impact on the students' competence. The findings refer to what Dudley-Evans and St John (1998) believe to affect the way students learn.

On the topic of the expectations that the students had of the course being offered (technical report writing), the majority of the students agreed that they expected that it would help them to gain language proficiency applicable to their academic and professional careers. Specifically, these students expected the course to offer them the fundamental communication skills of writing essays, letters and reports, proposals, and field summaries; speaking in discussions, as well as in front of employers, and reading different technological journals, books and texts. The students' discussion in this regard agrees with the interview responses of instructors and employers, as well as students' questionnaires.

Most of the students wanted the course to provide them with lessons, examples and practices of vocabulary and grammar, which are, they said, helpful to develop their speaking, reading and writing skills. This finding agrees with the results of the students' and instructors' questionnaires as well as the instructors' and employers' interviews.

On the question of their attitude towards English, or whether they liked learning English or not, most of the participants believed they had a negative attitude towards learning English. Many of them said that they did not have good teachers who could provide them with basic knowledge and appropriate teaching methods. The participants of the discussion explained that their English classes were often boring, repetitive and meaningless, which caused their negative attitude towards learning the language.

Another point of the students' discussion was whether or not the course met their own needs. In this regard, the group had a similar stand, in mentioning the great importance of the course in improving their academic as well as professional writing skills - writing paragraphs, essays, and research, paraphrasing and summarising. They wanted various practical and real examples as well as practices taking them around projects to let them do the activities themselves - write reports and related tasks as part of the course requirements. They said they were not getting that from the course. The teachers' interview results strongly agreed with this idea. The students specifically needed the course to be able to communicate effectively in writing and speaking with employers about professional duties, with local or international organisations and with foreigners, as they had no ability to do it in an effective way. This finding seemed to be consistent with the language needs for the social purpose identified in the questionnaire results.

The students also discussed the relevance of the course to their level and most of them said that the contents of the course were up to their level, but the tasks and activities must be related to their specific fields, to their academic and professional purposes in general and they felt that the activities, tasks and examples did not relate to their field. The teachers in their interview appeared to share the same view. According to the participants, neither the tasks or activities or examples, nor the sample writing paragraphs and essay writing were related to the field of engineering. English teachers fully agreed with this idea.

In relation to the use of teaching aids, all the students agreed that none of their English teachers used tape-recorders, videos, language laboratory lessons or overhead projectors while teaching the technical report writing, but the teachers frequently used the whiteboard. However, this frequent use of the whiteboard was against the students' learning preferences as the students indicated in their responses to the open-ended questions of the questionnaires that they needed to learn using technology such as videos, the radio, and so on; to listen to some audio recordings or watch some videos in class and then to write a report from it.

The students in discussions said that though their instructors occasionally encouraged them to be involved in pair and group discussions, the class size could not let them move from one place to another for discussions. According to the participants, teachers sometimes encouraged students to answer questions through discussions in English. Some instructors, though not often, did not want their students to sit individually and answer questions; instead the teachers preferred group discussions. Students also said pair and group discussions were very important, and they called for appropriate attention to be given to solve the problem of the high number of students in a class, like those in the range of 60 to 70 students in a class at ASTU.

The students also agreed in the discussions that they had an average interest in the course since instructors talk too much about the activities and tasks instead of giving the learners the opportunity to practise. Last, the findings of the group discussions like the questionnaire results, emphasised maximising students' participation in the activities and tasks. They said that students should have access to materials such as audios and videos and written materials. They also understood that the mastery of the language skills and sub-skills was possible only through the adequate practice of the skills. Generally, it was possible to deduce that the course does not meet the students' learning needs, and the use of appropriate methodology.

2. English instructors' interview

Five English language instructors who were teaching the course *Technical Report Writing* were interviewed to answer questions referring to the way the course was offered by the university to students of engineering. Their responses are summarised and presented below.

First, the course instructors were asked about the background of their student-engineers to whom they were teaching the course, and they all agreed that most of the student-engineers were from good or medium English proficiency backgrounds, because students joining engineering departments were academically better than students joining the other departments. However, as the technical report writing course was not taught at high schools and preparatory classes, the instructors said that the students were new to the course. For example, one instructor, referring to his expectations of the students' English proficiency, said that over 70% of the students had serious problems with all the

language skills.

The instructors were asked if they found students' interest in the course as high, average, or low. Two of them said that even if it was difficult to know whether they had good interest or not, the students' interest was generally attributed to their poor language skills background at school so much that their current attitude towards the course seemed average. The other three instructors gave the assurance that they had witnessed a high interest in the students.

The respondents were also requested to respond to the question on whether the students appreciated the course (*Technical Report Writing*), and four of the students indicated that they were interested in learning the course, particularly when practical examples and exercises were provided. However, some students had a negative attitude towards the course, considering that it was an additional (common) course, and that it did not get attention equal to that of their engineering major courses. According to the instructor, the students complained that after graduation they all went to different parts of Ethiopia and they did not use English at work; rather they used local Ethiopian languages. For this reason, most of the students for this instructor had a negative attitude towards taking the *Technical Report Writing* course. Generally, however, it was possible to infer that students had an average interest aimed at scoring good grades rather than improving their language proficiency.

The instructors were asked if they had a course book, a text book or a module prepared at the level of the University for teaching the course. Their answer was negative. They prepared a manuscript for themselves and referred to different resources to help the students. They prepared and provided examples and an activity only from what they thought was good for the student-engineers. Four of them said that they shared a manuscript that an instructor had prepared a few years earlier for himself, from which he taught the course. They all agreed that there was no full-fledged material at the ASTU to teach the technical report writing course. Similarly, all of the five instructors responded that they also used the same technical report writing material prepared to teach the engineering students for other departments' students, like Law and Accounting.

The University seemed not to give equal attention to the *Technical Report Writing* course, because other courses like 'Communicative English Skills' and 'Basic Writing Skills' which were taught to all second-year students had their own text books. Similarly, the credit hours given to the course varied from department to department. For some departments, the course is offered on three credit hours and for others on two. Therefore, the instructors believed that there should have been a technical report writing module or textbook prepared based on the students' needs and the credit hours should be equal for all.

The next question forwarded to the instructors was regarding the rationale behind giving the *Technical Report Writing* course to student-engineers. The *Technical Report Writing* course was mainly meant to help students use the skills learnt at their different work places later in life, but it also helped them with future studies. The course aimed to prepare them to cope with the challenges they might face in their future professional duties. According to the instructors, the engineers were good at designing and putting their ideas on paper, and explaining that idea or the design in words and reports to communicate with others to bring about understanding might be difficult for them. So this course definitely helped them overcome these problems. Therefore, the technical report writing course was appropriate for student-engineers, as it helped them everywhere they go.

The instructors were also asked about their students' current level of proficiency in English. They indicated that the students were good at some parts like listening and reading, while they needed more

attention in the speaking and writing areas. The instructors, however, underscored that the English language learning background of their students mattered a lot. Those with a good language learning background had a good English proficiency level in the class.

Moreover, the instructors were interviewed and asked to indicate whether the *Technical Report Writing* course was appropriate for student-engineers considering their objectives of future occupation, academic studies and specialist vocabulary. For the instructors, the *Technical Report Writing* course was appropriate for student-engineers, regardless of the lack of the course book or module. The course was very important to prepare them for future their professions, the public services and other professional challenges.

The next question posed to the instructors was if they believed that changes should be made to the *Technical Report Writing* course currently being offered. All of them replied positively. However, they raised the problem that first and foremost, the course had no well-organised and uniformly used material or module. There was no well-designed material that was enriched with practical examples and practices in line with the objectives of the course. The *Technical Report Writing* course content was sometimes mixed with that of academic and basic writing skills. All the instructors felt that there should be course material which provides the students with sufficient samples of the technical writing they should produce. The university needed to facilitate the preparation of a centrally designed material by professionals based on students' needs so that the students will have similar information. They also recommended that the activities of the course should include practical field visits and report writing exercises, which were among the aspects of the course they said that needed some changes.

Similarly, the reality reflected by one of the instructors was that change is part of life, and there always has to be change, otherwise things would be boring. The Department of English sometimes lets them offer the course with one credit hour only, and that makes students not to give the course the equal attention that they gave to the other courses. Therefore the suggestion was that the course should be offered at more than two credit hours.

The teachers believed that the course could be more effective if it went along with the activities and practices the students would perform when they go to their professional career. This can help improve their motivation in learning, according to the teachers. Additionally, in the teachers' view, the course should also consider the employers' needs when it is designed. Therefore, all the instructors agreed that the course should be revised to meet these needs. This was also consistent with the implication of the needs analysis of the questionnaire.

In their additional comments, all of them raised different but complementary ideas. One of them said that the authorities were not considering the technical report writing course as an important course. One instructor also said that the authorities from the Language Department and the Technology Department should meet and talk about preparing a well-organised *Technical Report Writing* material filled with technical jargon and specialist vocabulary in such a way that both the language and technology terms were specifically selected to make them relevant.

Another instructor complained about the class size and was worried about problems that might be encountered to follow up students' improvement in technical writing. The respondent also recommended that the language department personnel and those in the technology department should work together in order to enable engineering students to write better.

Moreover, it was argued that the strategy that ‘all students must pass’ did not seem to be fair and it should be changed as it was harmful to the quality of education. Another point emphasised was that instructors in the language department offering the *Technical Report Writing* course to engineering students needed training on how to offer the course in a way that included the technical jargon used in the engineering field. It was emphasised that both the language and technology departments should work together on such issues.

Regarding the proficiency level expected of student-engineers, the five instructors responded that all the skills were undoubtedly important with the four macro-skills given more emphasis than grammar, vocabulary and pronunciation. According to the instructors, English competence would help the student-engineers to be more competent in the execution of their professional duties.

3. Employers’ interviews

Two employers, namely the GIZ International Services, University Capacity Building Program (UCBP), Adama site office and the Adama Municipality were included in the study. The site manager of the GIZ and the Engineering department head from the Adama Municipality were interviewed. Both of them are engineers themselves. These employers’ interviews revolved around the importance of English for engineers in the working environment to accomplish the engineers’ duties to the expectations of the employing office.

The first question was about the tasks and activities they thought English was needed for by engineers on their job, and the respondents said that in the profession of engineering, everything was written in English. Therefore whether these were local or international duties, and whether it was reporting, writing letters, memos, application letters, or communicating with site engineers and employers in the case of international projects, English was a critical skill. Moreover, any material relating to construction, designing or machinery is prepared in the English language. Even reporting formats, site plans and designs are prepared in English. The employees have to read and understand properly to efficiently accomplish their duties. The respondents said that engineers are expected to prepare materials or reports in English through which they easily communicate with employers. In the same manner, the reports written by the engineers would be filed as the property for their organisation as a reference for other staff. Therefore, the employers said that each and every document in engineering is prepared in English, and there is no activity which does not need the engineers’ use of English. The employers also believed that using English in the work place would improve the quality of activities and the performance of engineers.

However, in the case of Adama Town Municipality, engineers report to their immediate supervisors in the regional language, Afan Oromo, but still the formats of project follow-ups, reports, designs and materials are prepared in English and these are used by the engineers everywhere. In the case of the GIZ, everything is done in English as the employers are foreigners and the project is funded by international agencies.

With regards to their expectations of the ESP programmes being to the benefit of their employees’ English competence, the employers responded optimistically. They said that different technological innovations, materials and documents are prepared in English, especially for engineers. If engineers have a better English proficiency level, applying and using the technological innovations and materials would increase their level of performance professionally.

The employers were also asked to rank the English language skills in order of their importance for the engineering profession. Both interviewees rated reading in the first place followed by writing. They said that communicating with others through reading, writing, listening and then speaking is important, followed by specialist vocabulary, grammar and pronunciation. However, student-engineers' responses to a similar inquiry seemed to be incompatible with those of the employers. The students' perception in the questionnaires indicated speaking to be the most important skill for their future occupation followed by reading and writing skills as second and third. The incompatibility of the responses might be due to the students' expectations of oral communication to be more important at the work place, more than the other skills.

The next question forwarded to the employers was whether they used English in their projects and office work with the engineers. At Adama Municipality, engineers use the English, Afan Oromo and Amharic languages. The engineers' supervisor said that the English language was used most often when they dealt with projects funded by international organisations like the World Bank. He also said that the World Bank supported most of their projects and written and oral reports in English were needed. However, at the GIZ, engineers always used English as GIZ is an international organisation and all activities were executed in English and German. In both cases, a specialist vocabulary is common. Whether English or Afan Oromo was used for oral or written reports, and whether English or Afan Oromo was used in the field or construction sites, the technical words and terms in the project materials and in the designs were all in English. So English, in the case of GIZ, was always used in meetings, reports (written and oral) and field reports.

Another question focused on areas or skills where the employees found difficulties. The respondent from the GIZ said that their engineers did not like writing in English. They wanted to speak in any other way they could. In contrast, the engineers' supervisor at the Adama Town Municipality said that the engineers had serious problems with speaking. The next question asked the respondents whether the engineers properly understood notes, memos and plans issued to them by the employers. Both interviewees responded that their engineers had no problem understanding the communication meant for them and the tasks were done properly.

In response to the question whether they thought the *Technical Report Writing* course offered by the universities matched the needs of their organisations, both employers said that the course did not respond adequately to the needs of their respective institutions. They also said that it was not enough. They even referred to their university days when they took the course and said that the course needed practice as much as possible. They also said that the course needed to include field visits. According to the employers, student-engineers needed to be taught about the purpose of the *Technical Report Writing* course and the need to apply what they learnt at their various jobs. Similarly, there should be extensive exercises through which students can have sufficient time to practise report writing. Generally, the employers felt that the *Technical Report Writing* course being offered at universities did not satisfy the current need of engineering-related jobs.

Invited for further comments, the employers emphasised the need for more practical examples and exercises to be included in the *Technical Report Writing* course. The student-engineers should also be purpose oriented on how to be responsible when performing professional duties, no matter whether they worked for local or international organisations. They said that they were facing problems while dealing with employed engineers in target oriented tasks as their engineers lacked focus, purpose and commitment when using English. One of them said that when asked to write a single page, five sentences long recommendation letter in English, it took them more than thirty minutes to complete the task.

Student-engineers need to be given special English that focusses on their profession. Hence the employers emphasised that the concerned bodies should consider materials preparation that meet the needs of both the students and employers.

Conclusions

In the academic studies of student-engineers, it was found that writing, reading, vocabulary, speaking, listening, grammar and pronunciation were important English skills, in this specific order. Specific activities were identified and prioritised in relation to the four macro-skills (reading, writing, speaking and listening). Occupation-related English macro-skills and activities were also identified and prioritised. In general, the students had problems in all skills, especially in the speaking skills in their academic domain. Hence students needed English mainly for future occupational purposes, more than for their academic purposes.

The study yielded important findings. First, the engineering students at the Adama Science and Technology University had language competences of between average and fair (that is, fair to average proficiency in speaking, writing, reading, and listening as well as a fair knowledge of vocabulary, grammar, and pronunciation). Second, the skills of writing and reading were discovered to be top priority needs, both academically and professionally. The students at ASTU expected the *Technical Report Writing* course to incorporate practical exercises, examples and activities that will enable them to write effective technical materials, and English skills and activities that can help them in their professional lives. Third, the students were found to lack confidence in using English as well as having a low motivation to learn the language. Fourth, the university did not have a module or a full-fledged course book for the *Technical Report Writing* course for engineers. Instructors used the same *Technical Report Writing* course material used for other departments like law and accounting to teach engineering students. The course material prepared by each instructor, therefore, was discovered not to adequately address the students' technical report writing needs and it did not contain the dominant features of an ESP material.

In addition, the *Technical Report Writing* course offered by ASTU reportedly did not match the maximum needs of employers. The course being offered at universities did not satisfy the current needs of engineering-related jobs. The course needed to include field visits, and students should give equal attention to the course as they do to other courses.

Recommendations

In view of the findings and their implications, the following suggestions are hereby made:

- For the fact that there was no course module or text book designed based on a needs analysis and the basic considerations of an ESP text, ASTU and other universities lacking technical report writing materials for engineers should think of designing it considering the features of an ESP text material, like the relationship between teachers and students, and the flexibility of the material.
- Syllabus designers and material developers should take into consideration activities, tasks and language features which are pertinent to the engineering profession. That is, English for engineers may be a more relevant course than the General Purposes English course.
- Material developers and English teachers should take into account the students' difficulties in budgeting their time for teaching.
- The gap between target needs and students' current competence needs have to be well-bridged in order to help them exert their maximum effort in giving the necessary engineering services.

- There should be collaboration between schools in sharing resources, at least, for such courses should be emphasised, because such collaboration is now entirely lacking.
- Engineering schools should give due consideration to the *Technical Report Writing* course and budget enough time and more student-focused activities, since the course is one of the important courses for them to be successful engineers, besides their major courses.
- Course designers and English teachers must work together with the Engineering departments so as to reach a consensus on piloting, implementing, and evaluating the English language programme. Such attempts should be carried out as continually as possible in order to evaluate, assess and identify the ever-changing language needs of students, together with the elements of syllabus not only for the *Technical Report Writing* course, but also for other related courses that suit the students' needs (and implement innovative development change when and where necessary).
- Since needs analysis is not a once and for all activity, there is room for researchers to pursue further research on English for engineering and technology. For example, extensive text analysis, occupational needs analysis and learning situation analysis are some of the areas which need further research.

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