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ESP Needs Analysis for Engineering Students: A Learner Centered Approach

Md. Jamal Hossain*

ABSTRACT

The purpose of this study is to find out the needs and wants required for effective professional communication in English writing and speaking proficiency for engineering students at Presidency University, Dhaka. The study attempts to investigate the needs of students, analyses the existing teacher content and pedagogical knowledge and finally suggest to compromise with the learner demands in terms of the context situations and other barriers. To do so the subjects were invited to provide their opinions through a set of questionnaire containing 20 close ended questions. My research was motivated by the insight that "Needs analysis is neither unique to language teaching nor within language training but it is often seen as being the corner stone of ESP and leads to a very focused course" [1].

Keywords: ESP, needs analysis, learner demands, effective professional communication, realities

INTRODUCTION

The status of English as an international language has affected many domains of life and society. And of these fields perhaps education is the most significant one. The evidence to it is the inclusion of English as a compulsory course at different levels of education. This is because in the arenas of international diplomacy, politics, trade and commerce English is the prioritized medium of communication. Ellis and Johnson view, "With the needs of rapid communication being what they are today, proficiency in a common language is a necessity. Competitive demands of government, industry and corporations, both national and international, for economic and technological progress, require a language that is effective and understandable within that economy and technology. That language today is English" in [2]. Hence it is no matter of wonder that local organizations at present prefer employees with better proficiency in writing and speaking English. Accordingly, our students want to prepare themselves fit for the job market by learning English better. And as teachers we have to improve their skill in English. The students of Azimur Rahman School of Engineering at Presidency University study two courses on English for Specific Purposes. The first one is English Reading and Composition which focuses on their needs for reading and writing proficiency. And the second one is Business Communication or Advanced English Communication that concentrates on their needs for writing and speaking proficiency. Hence, the first step in improving their proficiency in writing and speaking is to identify their specific learning needs, "A thorough organizational and instructional needs assessment lies at the heart of a well designed, effective ESP course" [3].

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* *Assistant Professor , Dept of English Presidency University, Gulshan 2, Dhaka 1212*
Email: jamal_h@mail.presidendency.edu.bd

DEFINITION AND CHARACTERISTICS OF ESP

The term ESP stands for English for Specific Purposes. It is a linguistic field of study that addresses the immediate and very specific needs of learners for a target language which is required for academic or professional purposes. It is a subdivision of Language for Specific Purposes (LSP), which is defined as, "…the area of inquiry and practice in the development of language programs for people who need a language to meet a predictable range of communicative needs" [4]. Therefore, communicative competence is a very significant issue in ESP. ESP has a number of characteristics which differentiate itself from general English. Dudely-Evans and St. John offered a modified definition of absolute and variable characteristics of ESP:

I. Absolute Characteristics

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

II. Variable Characteristics

- ESP may be related to or designed for specific disciplines;
- ESP may use, in specific teaching situations, a different methodology from that of general English;
- ESP is likely to be designed for adult learners, either at a tertiary level institution or in a professional work situation. It could, however, be for learners at secondary school level;
- ESP is generally designed for intermediate or advanced students;
- Most ESP courses assume some basic knowledge of the language system, but it can be used with beginners [1].

Hence, a number of terms and phrases are very important for ESP. Those are specific needs, language skills, designed for specific disciplines, and designed for adult learners. Accordingly, Hutchinson and Waters maintain that what distinguishes ESP from general English is an awareness of the need [5]. Again Robinson views, "ESP first arose, and has continued to develop, in response to a need: the need of non-native speakers of the language to use it for some clearly defined practical purpose. As purposes change, so must ESP" [6]. Though Robinson's definition is almost similar to that of Hutchinson and Waters, she clearly mentions that the need of language in ESP is particularly concerned with non-native speakers. However, the most concise and significant definition of ESP is perhaps provided by van Naerssen, Brinton and Kuzetnova. They observe that the core principals of ESP are; needs-driven, specificity and relevance [15].

THE STUDY

A. Purposes of Study

The purposes of this study were to identify the needs and demands of the learners of Azimur Rahman School of Engineering in improving their English writing and speaking proficiency and accordingly develop teacher content and pedagogical knowledge in teaching Business or Advanced English Communication. To do so the study investigated:

- What types of problems engineering students face in improving their proficiency in English writing and speaking.
- What sorts of teaching aids they demand from their ESP instructors.
- What types of materials they think their ESP course should include.
- What roles their ESP facilitators should play for coping up with their demands.

B. Scope

This study investigated the specific skills and activities engineering learners may require for effective professional communication in future. Since the studied course is Business or Advanced English Communication particular focus was given on English writing and speaking proficiency. Accordingly, this research examined the subjects' needs and demands, existing facilities they may benefit from and the facilities they would like to have for developing their proficiency in the said areas.

C. Limitation

This study is limited to the opinions of the subjects who responded to the constructed questionnaire and focuses only on English proficiency in writing and speaking as part of effective professional communication.

D. Importance

Since this investigation was conducted with an aim to improving the writing and speaking English proficiency of the subjects it is hoped that it will benefit the engineering students greatly in their future professional communication. It will also be of assistance to their ESP facilitators in developing a learner-centered curriculum and delivering instructions accordingly. Furthermore, it will guide the school of engineering to realize the needs for reorganizing the current facilities for ESP courses in terms of the learners' needs and demands.

Literature Review

Needs analysis is considered to be the main driving factor in ESP curriculum development. In the domain of language program design, needs analysis refers to a number of means for identifying and validating the needs and establishes priorities among those [8]. Brown defines needs analysis as "the activities involved in gathering information that will serve as the basis for developing a curriculum that will meet the learning needs of a particular group of learners" [9]. Ellis and Johnson view needs analysis as a method of obtaining a description of a learner's needs (or group of learner's needs) [10]. Their definition of needs analysis is almost similar to Brown's. Thus the goals of needs analysis are to find out what learners want to use the language for and what level of competencies they have in the language at present. Data collection about the course materials is also necessary. Richards observes that needs

analysis is the requirement for fact-finding or the collection of data from various sources, for example the data about learners, the materials and so on [11].

Westerfield views, "In the needs assessment process, the ESP practitioner does his/her best to find out information about the needs of the sponsor organization, the needs and wants of the learner, and the context in which the learning will take place. This will involve conducting a *Target Situation Analysis* (what does the learner need to be able to do with the language in the future), a *Present Situation Analysis* (what can the learner do with the language now), and a *Context Analysis* (what is the environment in which the learning will take place)" [3]. From the above explanation it is obvious that the investigation of needs analysis may be conducted in three different areas which are- Target Situation Analysis, Present Situation Analysis and Context Analysis. These can be done by "examining both qualitative and quantitative information based on questionnaires, tests, interviews and observations" [2]. And the ultimate goal of needs analysis is to design a curriculum and develop appropriate teaching techniques, as [12] view, "The results of needs analysis can be used to determine a syllabus and suitable teaching techniques". This is necessary because "…in a learner-centered classroom, key decisions about what will be taught, how it will be taught, when it will be taught, and how it will be assessed will be made with reference to the learner. Information from learners, and where feasible, from learners, will be used to answer the key questions of what, how, when and how well" [13]. Thereby, ESP needs analysis will perhaps contribute greatly to the development of engineering students' English proficiency in writing and speaking.

METHODOLOGY

Every situation is dissimilar. So, there is no single approach to needs analysis in foreign language teaching. Hutchinson and Waters view, "The choice of method will depend on time and resources available and the procedures of each will depend on accessibility" [5]. In this study I followed qualitative method. The information was collected through a questionnaire because it seemed to be the most appropriate tool for gathering the views and demands of the learners. A closed end interview was also conducted with a few chosen subjects in order to verify the data collected from the questionnaire. However, the interview data were not recorded in the findings and results.

A. The Participants

A pilot survey for this research initially included 112 participants chosen randomly from different programs of Azimur Rahman School of Engineering at Presidency University. However, 9 of the questionnaires were rejected because those were partially completed. Thereby the subjects were limited to 103. The participants were enrolled in Business and Advanced English Communication in spring, summer and fall semesters in 2011.

B. The Questionnaire

The questionnaire was written in English and contained three sections – part 1: 6 questions, part 2: 7 questions and part 3: 7 questions. Part 1 was developed to analyze the Target Situation, part 2 was developed to analyze the Present Situation and part 3 to analyze the Context Situation. The participants chose their answers from multiple options each question set. However, in a few questions the respondents could pick more than one option if they liked.

C. Validity of Questionnaire

Most of the questions for Target Situation Analysis were constructed following Munbian Communication Needs Processor (CNP) parameters. This is because in the CNP, account is taken of "the variables that affect communication needs by organizing them as parameters in a dynamic relationship to each other" [14]. Hutchinson and Waters view, "With the development of the CNP it seemed as if ESP had come of age. The machinery for identifying the needs of any group of learners had been provided: all the course designers had to do was to operate it" [5]. Again the questions for Present Situation Analysis and Context Analysis were formed after the suggestions provided by Westerfield [3]. Hence it is obvious that the questionnaire of this research conforms to face and content validity.

D. Data Analysis and Statistical Device

The frequency of the subjects' opinions and views about their needs and wants for improving their English proficiency in writing and speaking were treated as data. The statistical devices used for analyzing those data were arithmetic means, percentage and frequency distribution.

THE RESULTS OF THE STUDY

A. Discussion of the Results

Part I of the questionnaire investigated about the Target Situation of the subjects. Most of the respondents (51.4%) belonged to 18-21 age group and the highest no. of participants (85.4%) were males. It was found that most of the respondents (67%) had an average level of proficiency in the target language, i.e. English. The second question found that nearly all (75.7%) needed to learn Business Communication or Advanced English Communication for their future profession. Next, the largest number of learners (92.2%) voted that the language would be used for both writing and speaking and said that almost all of them (86.4%) would use it for writing business correspondence. However, a good number of them (78.6%) realized that they would use the language for face to face communication also. The third necessary channel of communication (53.4%) where the language would be required was voted as telephone conversations. Afterward, the largest portion of the learners (71.8%) demanded that the content areas should be related to engineering because majority (40%) of them would work as technicians and a lesser no. of them (34%) as managers. Again maximum subjects (66%) chose that the language would be used in field level and majority of them (44.7%) would use it alone. The second highest number of respondents (39.8%) realized that they would require the language to use for demonstrations over telephones. However, majority of them (87.4%) viewed that they would use it in their home country. The last question of this section inquired when and how often the language will be used. Maximum learners (75.7%) said that the language would be used after completion of their studies and they would use it very often in their profession as well as in social life.

The second section of the questionnaire surveyed the Present Situation of the ESP learners. The highest number of participants (85.4%) viewed that they were good in writing while maximum (67%) said that they were average in speaking. Next question found that most of them (76.7%) could write grammatically correct sentence and maximum (73.8%) could speak with grammatical correctness. About their weaknesses the majority (87.3%) said that they could not produce analytical, coherent and cohesive writing while the second largest participants (63%) told that they failed to create well-organized paragraphs. Regarding

weaknesses in speaking all of them (100%) agreed that they could not speak in context, with fluency and intonation. The second highest number of respondents (79.6%) failed to speak fluently and the third highest (62%) had problem with speaking in context. Next, 87.3% participants, the highest, admitted that they did not have any background in Business Communication. After that, 96% learners, the highest, picked up the option that they lacked the skill of writing business correspondence and 83.5%, the second highest, lacked the skill of job interview. Next, the largest part (56.3%) answered that their past language learning experiences were average. The last question of this section inquired about their purpose of doing Business Communication. Nearly everyone (63%) replied that their purpose was to develop professional communication in writing and speaking.

The third and last section of this questionnaire surveyed on the Context, the environment where the language learning would take place. In answer to the first question, 79.6% participants chose the option that the instructional materials should be delivered not only face to face, but also using Internet and multimedia presentation with sound system. To answer the second question, majority (67%) viewed that Business Communication course should be held in a classroom which would be Internet and multimedia facilitated with sound system and decorated with posters and maps with speaking and writing tips, phrases and idioms, puzzles, vocabulary learning tips, etc. Next, maximum (48.5%) learners voted for the option that attendance should be mandatory and a part of course evaluation. After that the respondents chose their answer to when they should enroll in the course. Most of them (43.3%) said that they should do this course last semester. The eighth question was about selection of course materials. The majority (79.6%) of the respondents said that the course materials should be chosen from different sources like textbooks, instruction/equipment manuals, CDs, DVDs, videotapes, and other materials used in content courses or to train people for a job; materials used on a job, such as work forms, charts and samples of relevant course assignments and student papers; and from websites providing business letters, dialogues, instructions, telephone conversations, podcasts, vodcasts, etc. Subsequently the largest part (87.4%) of the participants realized that the existing classroom resources (i.e. white-board, multimedia projector, OHP, etc.) were not sufficient. In answer to the last question of the questionnaire, the highest no. of learners (70.9%) viewed that the course classes should be held in the early hours of the morning or evening.

MAJOR FINDINGS

From the results of the study a number of important facts could be found. Those are:

- The learners had an average level of proficiency in the target language, i.e. English. So they needed to learn Business Communication or Advanced English Communication for use in their future profession in their home country mainly. And they would use their communication proficiency for writing business correspondence as well as for oral communication.
- The content areas of Business Communication and Advanced English Communication should be related to engineering because in future they would work as technicians and managers in their fields.
- Though many of them could write and speak correctly, they were better in writing than speaking.

- They could not produce analytical, coherent and cohesive writing and often failed to create well-organized paragraphs. None of them could speak in context, with fluency and intonation. Therefore, improvement of writing and speaking skills are very urgent for them.
- They did not have any background in Business Communication why they lacked the skill of writing business correspondence.
- Their past language learning experiences were not so good why development of professional communication in writing and speaking was a great necessity for them.
- The instructional materials should be delivered not only face to face, but also using Internet and multimedia presentations with sound system.
- The existing classroom resources (i.e. white-board, multimedia projector, OHP, etc.) were not sufficient. Therefore, a classroom with Internet and multimedia facilities along with sound system and decorated with posters and maps with speaking and writing tips, phrases and idioms, puzzles, vocabulary learning tips, etc. was required.
- Attendance in the course classes should be mandatory and an integral part of course evaluation.
- The course materials should be chosen from different sources like textbooks, instruction equipment manuals, CDs, DVDs, videotapes, and other materials used in content courses or to train people for a job; materials used on a job, such as work forms, charts and samples of relevant course assignments and student papers; as well as materials from websites like business letters, dialogues, instructions, telephone conversations, pod-casts, vodcasts, etc.
- They should be advised for this course during the end of their engineering program.
- The course classes should be held in the early hours of the morning or evening.

CONCLUSION AND RECOMMENDATION

The learners had previous experiences of learning English for about twelve years. Still their level of proficiency in English was not so good. However, they were better in writing than speaking. They need to learn Business Communication for use in their future job profession in their home country mainly. Thereby, focus should be given on both writing business correspondence and speaking skill. Hence, they should be exposed to extensive writing and speaking practices in and outside classroom. Accordingly, Task Based Instructions (TBI), problem solution based pair and group works, mandatory use of target language in class, prompt and preparatory class presentations, dialogues, instructions, telephone conversations, procedures description and viva voce in addition to writing business correspondence may be introduced. For selection of course materials an instructor should consult different sources like textbooks, instruction/ equipment manuals, CDs, DVDs, videotapes, materials used in content courses or to train people for a job, materials used on a job, such as work forms, charts and samples of relevant course assignments and student papers; and business communication related websites which provide business letters, dialogues, instructions, telephone conversations, pod-casts, vodcasts, etc. Since there is time constraint, the design of course materials will depend on the instructor's discretion on the basis of learners' needs. And the summative assessment of the course should include both writing and speaking

proficiency. Moreover, attendance in the course classes should be declared mandatory and made a vital part of course evaluation.

After the demands of the learners the content areas of Business and Advanced English Communication should be connected to engineering because in future they would work as technicians and managers in their fields. The course teachers should deliver the instructional materials not only face to face, but also using Internet and multimedia presentations with sound system. Since the existing classroom resources (i.e. white-board, multimedia projector, OHP, etc.) are not sufficient, the concerned authority should provide a classroom with Internet and multimedia facilities along with sound system and decorated with posters and maps with speaking and writing tips, phrases and idioms, puzzles, vocabulary learning tips, etc. Again, students should be advised for this course during the end their engineering program. This will be more convenient for them for using their acquired professional communication in jobs. Regarding the class schedules, the early hours of the morning or evening are preferred which may aid learners absorb and learn the course materials better.

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APPENDIX
Questionnaire

This questionnaire is part of an academic research. Your cooperation will aid the research. The researcher promises to maintain strict confidentiality of your information.

Please put a tick on the correct options & write information if required.

1. Please provide the following information:
   a) Your age: 18-21 22-25 26-29 30+
   b) Your sex: Male Female
   c) Level of proficiency in English: Average Good Very good Excellent
   d) Any other language known:
   e) Level of proficiency in third language: Average Good Very good Excellent
2. For what immediate purposes do you need to learn Business/Advance English Communication?
   Study Research Social purposes Travel Profession/Job Study abroad Other
3. How will the language be used?
   a) Medium: Speaking Writing Other skills
   b) Channel: Telephone Face to face Business correspondence
4. What will the content areas be?
   a) Subjects: Engineering Commerce Others
   b) Level: Technician Field worker Management Others
5. Where will the language be used?
   a) Physical setting: Office Hotel Field Workshop
   b) Human context: Alone Meetings Demonstrations over phone
   c) Linguistic context: Home country Abroad
6. When and how will the language be used?
   a) Time: Concurrently with the ESP course Subsequently
   b) Frequency of use: Always Very often Moderately Little Rarely
7. What is your current level of English in writing and speaking?
   a) Writing: Average Good Very good Excellent
   b) Speaking: Average Good Very good Excellent
8. What strengths do you have in writing and speaking?
   a) Writing: i. writing grammatically correct sentences ii. free hand writing iii. creating well-organized paragraphs iv. analytical, coherent and cohesive writing
   b) Speaking: i. can speak with grammatical correctness ii. can speak in context iii. can speak fluently iv. can speak in context, with fluency and intonation
9. What weaknesses do you have in writing and speaking?
   a) Writing: i. can't write grammatically correct sentences ii. can't write in free hand iii. can't create well-organized paragraphs iv. can't produce analytical, coherent and cohesive writing
   b) Speaking: i. can't speak with grammatical correctness ii. Can't speak in context iii. can't speak fluently iv. can't speak in context, with fluency and intonation

10. Do you have any background in Business Communication?
    a) Do not have any idea b) Yes c) No
11. Which key job skills do you lack?
    a) Job application and resume writing b) Job interview
    c) Presentation in a meeting d) Business correspondence writing
12. What are your past language learning experiences?
    Average Good Very good Excellent
13. Why are you doing Business/Advance English Communication course?
    a) To develop professional communication in writing and speaking
    b) To develop skill in writing business correspondence
    c) To develop job interview skill
    d) To develop presentation skill
14. How do you want the instructional materials to be delivered?
    a) Have no idea
    b) Traditionally face-to-face
    c) On-line and multimedia based
    d) Not only face to face, but also using Internet and multimedia presentations with sound system
15. What type of classroom do you want Business/ Advance English Communication course to be held in?
    a) Classroom with white-board and OHP
    b) Multimedia facilitated with sound system
    c) Internet and multimedia facilitated with sound system
    d) Internet and multimedia facilitated with sound system and decorated with posters and maps with speaking and writing tips, phrases and idioms, puzzles, vocabulary learning tips, etc.
16. What do you think of the nature of attendance in the course?
    a) Attendance should be optional b) Attendance should be mandatory
    c) Attendance should be mandatory and a part of course evaluation d) Have no idea
17. When do you think you should enroll in this course?
    a) In 2nd –4th semester b) In 5th--7th semester
    c) In 8th – 10th semester d) Last semester
18. What types of materials do you think the course should include?
    a) Textbooks, instruction/equipment manuals, CDs, DVDs, videotapes, and other materials used in content courses or to train people for a job
    b) Materials used on a job, such as work forms, charts and samples of relevant course assignments and student papers
    c) Materials from websites like business letters, dialogues, instructions, telephone conversations, pod-casts, vodcasts, etc.
    d) Combination of all of these.

19. Are the classroom resources (i.e. white-board, multimedia projector, OHP, etc.) sufficient?
    a) Yes b) No c) Have no idea.
20. When do you want the course classes to be held?
    a) In the early hours of the morning or evening
    b) In the middle hours of the morning or evening
    c) In the late hours of the morning or evening
    d) Any time.