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An Analysis of Engineering Students English Language Need at MUST

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Abstract

This study aimed to identify the engineering students' English needs and their course of study at the Mongolian University of Science and Technology (MUST). Data was collected from following sources: top websites (www.ot.mn; www.biznetwork.mn; www.linkedin.com) networking sites for engineers to identify the importance of English for engineers; Study Plan of MUST to evaluate English syllabus and course of study for some of the most in-demand jobs that are taught in MUST; questionnaires engineering students taking EST and ESP to explore if English curriculums for engineering students are required for effective professional communication in future. The findings of the study revealed that there are some valid special English language needs of students in engineering departments at MUST. Unfortunately, the English language skills to meet the requirements of an engineer's job description have been underserved in the English curriculum at the university. It is additionally recommended that curriculum planners make use of the results in recognizing these needs, and to carry out similar studies for other universities offering engineering majors.

Keywords: english language needs, syllabus, engineer majors

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Introduction

The Mongolian University of Science and Technology (MUST), one of the leading state universities in the country and offers educational opportunities to students ranging from first-year undergraduates through doctoral-level candidates in engineering, technology, and others. Commonly, English language proficiency matters greatly in the global economy, to professionals at both the national and international levels. Professionals, including engineers, are expected to communicate effectively in English, even though they often use their mother tongue in everyday life. In the 21st Century, engineers must know not only how to convey technical information effectively, but also how to perform in the workplace with acceptable communication skills (Patil & Karekatti, 2012).

During the last few years there has been a model called CDIO for reforming engineering education development in Mongolia. The CDIO Program aims at developing a new model for engineering education, and stands for Conceive, Design, Implement and Operate in terms of engineering skills. The relevant sections of the CDIO syllabus are listed in italics below:

3.3 Communications in Foreign Languages
3.3.1 Communications in English.
3.3.2 Communications in Languages of Regional Commerce and Industry
3.3.3 Communications in Other Languages
(Rinder *et al.*, 2016)

In accordance with the CDIO syllabus, engineering students need training in effective communication skills, especially communications in Foreign Languages. According to Study Plan of MUST, CE101 S.CE101 Communication English is Compulsory; S.EST210 English for Science and Technology is elective or compulsory; S.ESP English for Specific Purposes is elective or compulsory at MUST. For engineering students whose mother tongue is not English, mastering English is even more important, not only for their academic life but also for their prospective career.

Researches in the field of the engineering, in particular, assert that English plays a significant role in the academic and professional areas of engineering students and graduates (Basturrkmen, 1998; Pritchard & Nasr, 2004; Patil, 2005). Therefore, engineering students and graduates need to be proficient enough in the English language if they want to become successful and are interested in getting employed in one of the local or internationally well-reputed engineering companies. Robinson takes note of that engineering students have particular English necessities and an essential ESP rule is to furnish them with these particular needs however much as could be expected (Robinson, 1991). According to Patil “Some global skills required by engineers, two of which include foreign language proficiency and proper understanding of international market and workplace requirements relevant to engineers’ employability” . Hashem notes that so as to build up a great instructive setting and make students prepared for their future work environment, advance the employability of graduates, and conquer any hindrance between corporate/industry English dialect desires and college syllabus and educational modules offerings, actualizing a careful dialect needs investigation is awesome significance before outlining a viable dialect course (Alsamadani, 2017).

This paper attempts to investigate, firstly, what the English language needs of

engineering students and graduates are at MUST, and secondly, to find out what specific English language skills companies look for in their prospective employees. Finally, we look to see if there is a need to develop a more comprehensive engineering educational program that meets the expectations of both students and industries.

Needs Analysis

There are many research studies relating to needs analysis. Needs analysis has had an important role in the process of designing and carrying out any language course, whether it be ESP or General English course.

According to Songhori, the role needs analysis is indisputable and its place is central in any course. Ellis and Johnson view needs analysis as a method of obtaining a description of a learner's need. Richard observes that As Brumfit's view, "The results of needs analysis can be used to determine a syllabus and suitable teaching techniques". Nunan notes that rather than fitting students to courses, courses should be designed to fit students. According to Benesch, once teachers are aware of the target English situations, they will be more effective in creating teaching and learning environments with suitable materials and classroom practices (Salehi, 2011).

Needs analysis is essential to ensure that our engineering students are equipped with the necessary communication skills to face their challenging professional environment.

Data and methodology

The study investigated that English language skill meeting the requirements in an engineer's job description. Data was collected from following sources: top web sites (www.ot.mn; www.biznetwork.mn; www.linkedin.com) as networking sites and job listing sites for engineers, in order to identify the importance of English for engineers; Study Plan of MUST to evaluate English curriculums for some of the most in-demand jobs that taught in MUST; engineering students taking EST and ESP by questionnaires to explore if English curriculums for engineering students are required for effective professional communication in future. The study consists of 3 sections.

First, the following analysis is derived from web sites announcing workplace for engineers in last 2 months to identify if there are specific English language skills for prospective employees.

Second, we explore our English curriculum and syllabus for engineering students, looking at what is required for effective professional communication in the future. The study investigated:

- What problems engineering students face in improving their English skills,
- What sorts of teaching aids they need from their English courses,
- What types of materials they think their EST and ESP should provide.

This study was carried out at School of Technology, MUST, and utilized a self-developed open-ended questionnaire by 78 students who are taking EST and ESP.

Third, the study investigates the school's Study Plan to evaluate the English syllabus for some of the most in demand fields that are taught in MUST. The aim was:

- How many hours engineer students should take EST and ESP,
- Whether the current English curriculum meet the needs and interests of engineering students,
- If the English program at MUST is important in engineering needs and interests.

Findings and results

The first section of the survey was collected 67 job announcements for engineers majoring in MUST from web sites mentioned above: There were for 21 for mechanic engineers, 18 for electrical engineers, 13 for construction engineers and others for mining engineers. 18 workplaces for mechanical engineers required speaking and writing skills, 15 workplaces for electrical engineers required upper-intermediate speaking skill, and 7 workplaces for construction engineer required intermediate speaking skill.

The second section was the questionnaire by students who take English at the university. The questionnaire consisted of 34 items including language skills, sub-skills and language need, and open-ended questions included to obtain data on their view concerning the priority of language skills and language use and about improving the language abilities of engineering students in MUST.

The finding shows that most of the students take English that is compulsory and the fewest number of students understand the English needs in their future career.

The second survey question of the study aimed at investigating what types of materials students use during English class.

Figure 1. Percentage of the reason of students taking EST and EPS

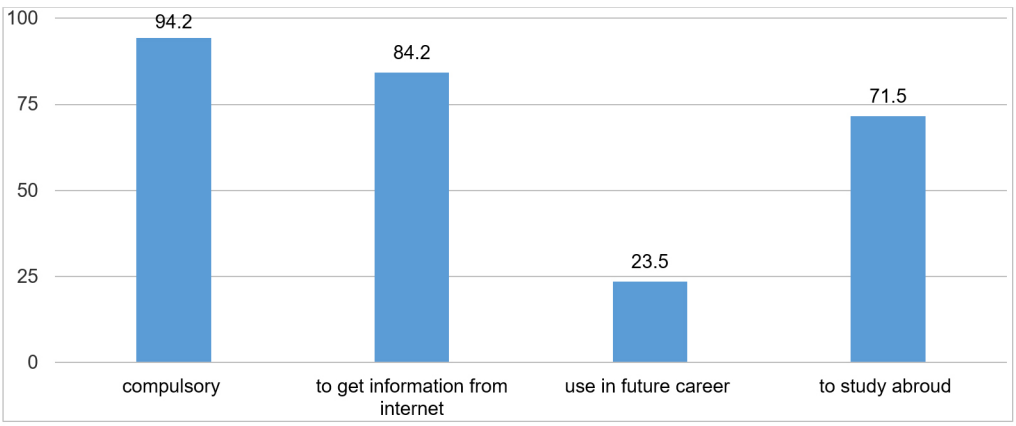


Figure 2. Percentage of exercises in lessons

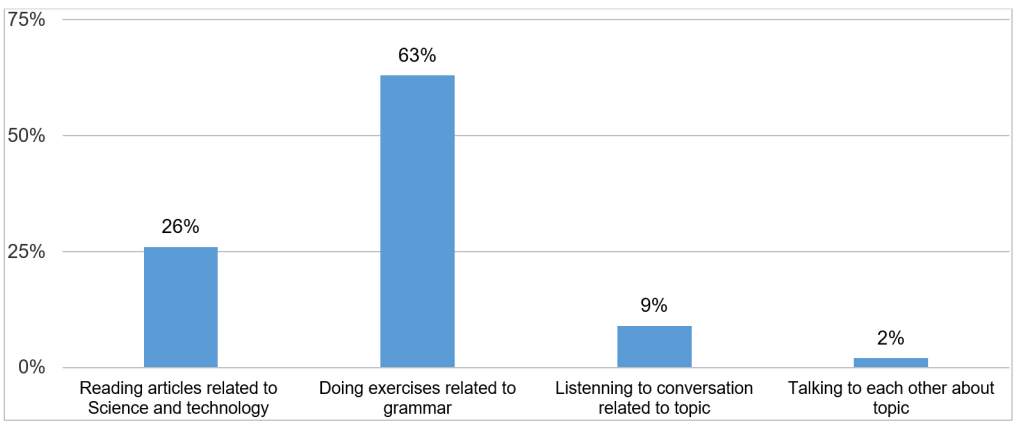


Figure 3. Percentage of importance of Area of Reading

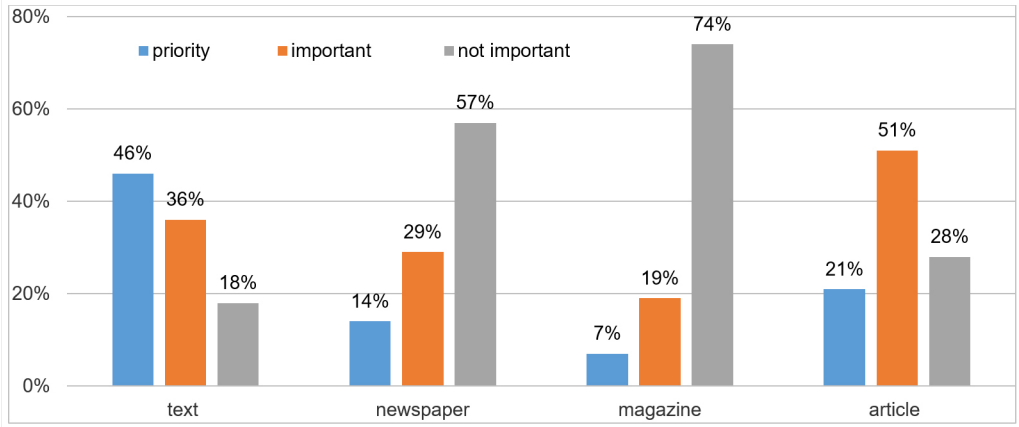
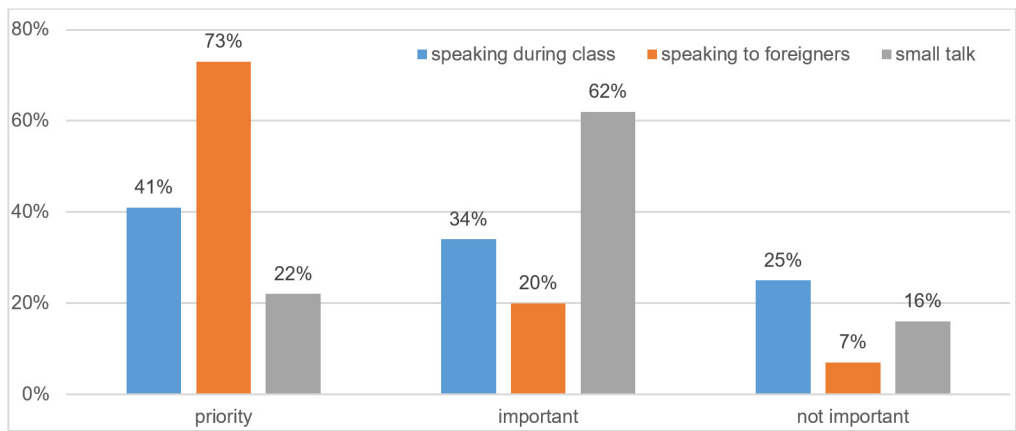


Figure 4. Percentage of importance in Areas of Speaking



The finding shows that students' listening and speaking skills could not be properly developed by materials that are used in the English courses.

The question investigated the comparative importance of specific areas of reading. The finding shows reading textbooks and articles were more important than reading newspapers or magazines. 46 percent considered reading textbook "important" and 74 percent considered reading magazine "not important".

The question was to investigate the comparative importance in speaking types to students. The highest "priority" was speaking to foreigners, 73 percent; the most "important" was small talk, 62 percent. Few participants selected "not important" speaking to foreigners.

The question was to determine the comparative importance in areas of writing to students. Writing e-mails is the highest "priority", 65 percent, while 23 percent considered writing report was "not important". Most students understood that writing business letters is very important when developing their writing skills.

The question was to determine what value developing listening skill has. 61 percent of participant considered explanations given

Figure 5. Percentage of importance in Areas of Writing

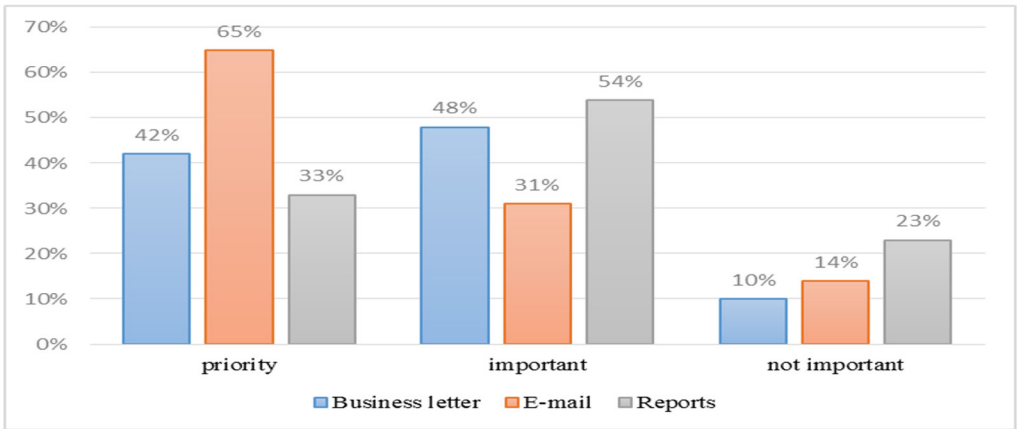


Figure 6. Percentage of importance in Area of Listening

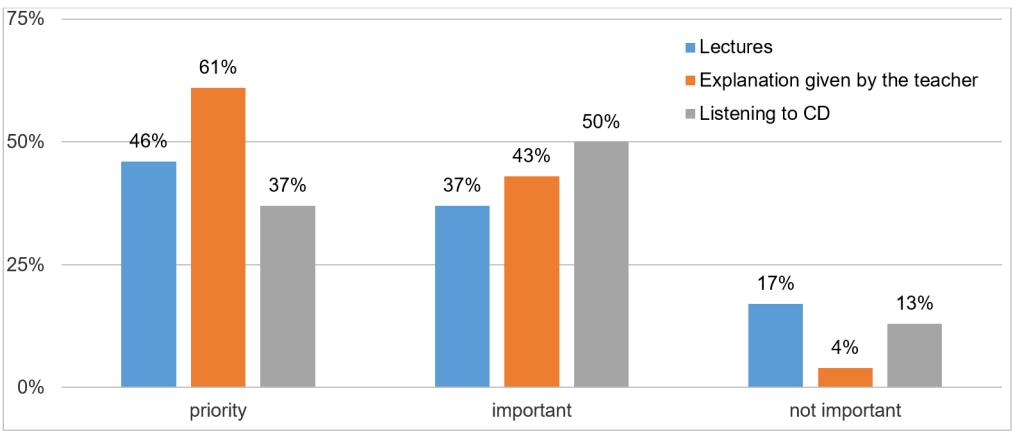


Table 1. Most successful learning strategies

Answer Choices	always	sometimes	never
Repeating new words to yourself	26%	29%	43%
Practice with friends	18%	39%	43%
Trying to use English whenever possible	13%	21%	66%
Revising what you have done in class	31%	22%	47%
Listening to English songs	47%	42%	11%
Watching videos in English	11%	27%	46%
Reading English books	10%	26 %	64%
Writing new word repeatedly	18%	37%	45%
Silent practice / thinking in your head/	47%	31%	22%

by teacher were “priority”, while 13 percent considered listening CD was “not important”.

The finding shows that 47 percent of participants always listen to English songs and 66 percent of them never try to use English whenever possible.

Table 2 shows that the highest self rated skill was reading with 63 percent of participants; lowest rated skills were speaking and listening. According to the findings Table 2,

Table 2. Self-rating of students in their skills

English skills	Almost perfect	Adequate	Need some help	Poor
Reading	63%	37&	0%	0%
Writing	25%	27%	24%	24%
Speaking	8%	23%	31%	38%
Listening	9%	23%	25%	43%

Table 3. Study Plan of MUST

English courses Specialization of engineering	Communication in English	English for Science and Technology	English for Specific Purposes	Credit
Electrical	compulsory	elective	compulsory	5
Mechanical	compulsory	compulsory	compulsory	8
Civil	compulsory	elective	elective	3
Mining	compulsory	elective	elective	3
Power plant	compulsory	compulsory	elective	6
Computing	compulsory	elective	elective	3

student's materials related to developing speaking and listening skills during classes were the fewest.

The last section of survey was to investigate Study Plan to evaluate English syllabus for some of the most demand jobs that are taught in MUST.

According to the Study Plan of MUST, S.CE101 Communication English is Compulsory; S.EST210 English for Science and Technology is elective and compulsory; S.ESP English for Specific Purposes is elective and compulsory depending on field of study.

Discussion and Recommendations

The study tried to identify the needs of English for engineering students, investigate communicative skills required in workplace, and evaluate our English requirements at MUST.

1. The findings of the study revealed that there are some valid special English language needs of engineering students at MUST. Unfortunately, the English language skills that meet the requirements in an engineer's job description have been underserved in the English curriculum in MUST.
2. The learners had previous experiences of learning English of about 8 years, on average. Still, their level in English is not good. However their writing skills are better than their speaking and listening skills. Therefore, focus should be given on both speaking and listening skills to use in their future professions.
3. For selection of course materials, a teacher needs to consult different sources, such as instructions, equipment manuals, CDs, DVDs, materials used on a job, web sites which provide business letters, dialogues, instructions, and telephone conversations. There should be a variety of materials not just textbooks. These will be more helpful for students when using English in jobs.
4. In accordance with the Section 3.3 of CDIO syllabus, engineering students need training in effective communication skills, especially communications in Foreign Languages. However, according to Study Plan of MUST, English for Science and Technology is elective for some specializations. The English for

Specific Purposes course is comparable to English for Science and Technology course. Materials are much more relevant in EST especially in structure and some vocabulary. Thus, engineering students should be required to take the EST course to enhance their English skills.

5. The results of this paper suggest full review, and redesign of the English curriculum and syllabus is necessary, including the instructional materials, learning strategies of the English courses to fit with learners' needs and society requirements to enhance an effective learning and teaching of the quality.

Finally, based on the results of this study, it may be helpful to conduct similar studies school wide in order to make the curriculum more widely applicable to life outside of the educational setting.

References

1. Alsamadani, H. A. (2017). Needs Analysis in ESP Context: Saudi Engineering Students as a Case Study. *Advanced in Language and Literary Studies*, 8(6), 58-68.
2. Joshi, D. H. (2013). Importance of English Language for Students of Engineering. *International Journal of Technical and Non-Technical Research*, 4(3), 50-56.
3. Khishigsukh, B. A Study on Needs Analysis of Non-English Major Students in Mongolian Universities.
4. Krish, R., Panadda, P.,Tuntiga, W., & Supanit, K. (2014). Use of the English Language Prior to and During Employment: Expreience and Needs of Thai Notice Engineers. *Global Journal of Engineering Education*, 16(1).
5. Mohammad, S. (2010). Investigating the English Needs of Engineering students. *English for Specific Purposes World*, 31(10).
6. Patil, S. & Karekatti, T. (2012). A Study of Language Learning Strategies Used by Engineering Students. *English for Specific Purposes World*, 35(1), 1-19.
7. Richards, J. C. (2015). Curriculum Development in Language Teaching. New-York.
8. Rinder, J., Geslin, T. S., & Tual, D. (2016). A Framework for Language and Communication in the CDIO Syllabus. *World Transactions on Engineering and Technology Education*, 14(1)
9. Robinson, P. C. (1991). ESP Today: A Practitioner's Guide. New York: Prentice Hall International.
10. Sarantuya, D. (2014). Teaching ESP Connecting with professional subjects. Research paper.
11. Study Plan of MUST.
12. www.ot.mn
13. www.biznetwork.mn
14. www.linkedin.com
15. http://lghor.alzahra.ac.ir/article_2661_cf7cb750f42a15b0ae21c6c68a9a5aeb.pdf